

NAVAL HEALTH RESEARCH CENTER

NAVAL HEALTH RESEARCH CENTER:

THIRTY-YEAR REVIEW

SEPTEMBER 1999

Edited by

E. K. E. Gunderson

Brenda M. Crooks

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**Naval Health Research Center
P.O. Box 85122
San Diego, CA 92186-5122**

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***30th Anniversary*
Embassy Suites Hotel, San Diego
*9 June 1989***

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**Vicennial Anniversary Review
and Historical Highlights
Argonaut Hall, Submarine Base
1 October 1979**

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IN REPLY REFER TO:

9 June 1989

From the Commanding Officer

It is a distinct honor and privilege for me to welcome each of you to the celebration commemorating the 30th Anniversary of the Naval Health Research Center.

On this important occasion former staff members, both military and civilian, have the opportunity to renew friendship and make new acquaintances.

This review provides a brief overview of the Center's origin, progress, achievements, and current mission and functions. It provides a summary of each department's current research program and lists present and former military and civilian staff members and student assistants. Also the personal observation and recollections of three distinguished colleagues associated with the founding and growth of the laboratory are included.

Happy Anniversary!

Robert D. Chaney
ROBERT D. CHANEY
Captain, Medical Corps, U.S. Navy

**OFFICERS IN CHARGE
and
COMMANDING OFFICERS**

U.S. Navy Medical Neuropsychiatric Research Unit (NPRU)

Officers in Charge

CDR Lowell K. Cunningham, MC, USN (Ret.)
1959-1962

CAPT Kenneth P. Jones, III, MC, USN (Dec.)
1962-1963

CDR Ransom J. Arthur, MC, USN
1963-1971

Commanding Officers

CAPT Ransom J. Arthur, MC, USN (Ret.)
1971-1974

Naval Health Research Center (NHRC)

CAPT David R. Ten Eyck, MC, USN (Ret.)
1974-1975

CAPT E. Fisher Coil, MC, USN (Ret.)
1975-1977

CAPT Richard H. Rahe, MC, USN (Ret.)
1977-1980

CAPT J. Eugene Lang, MC, USN (Ret.)
1980-1984

CAPT Michael F. Fornes, MC, USN (Ret.)
1984-1987

CDR Larry M. Dean, MSC, USN
1987-1987

CAPT Robert D. Chaney, MC, USN
1987-Present

CONSULTANTS

An original panel of consultants to the Surgeon General was appointed on 1 June 1959 to advise in research matters and other pertinent matters of interest in neuropsychiatry. The members of this panel were:

Francis J. Braceland, M.D.
Ewald W. Busse, M.D.
Francis M. Forster, M.D.
William A. Hunt, Ph.D.
Kenneth MacCorquodale, Ph.D.

George M. Raines, M.D.
John H. Rohrer, Ph.D.
Howard P. Rome, M.D.
Walter L. Wilkins, Ph.D.
Cecil L. Wittson, M.D.

Other consultants to NPRU/NHRC from 1964 to 1979 were:

Ransom J. Arthur, M.D.
Norman Q. Brill, M.D.
William C. Dement, M.D.
Wilfrid J. Dixon, Ph.D.
Richard F. Docter, Ph.D.
John R. P. French, Ph.D.
Reuben L. Hill, Ph.D.
Donald B. Lindsley, Ph.D.
John G. Looney, M. D.
Arnold J. Mandell, M.D.
George A. Mansfield, Jr., Ph.D.
Ivan N. Mensh, M.D.

Mrs. Iris R. Powers
Ralph W. Ritchie, Ph.D.
Robert T. Rubin, M.D., Ph.D.
Jon F. Sassin, M.D.
Marc A. Schuckit, M.D.
Saul B. Sells, Ph.D. (Dec.)
Julius Sendroy, Jr., Ph.D. (Dec.)
Ernest S. Tucker, III, M.D.
Donald O. Walter, M.D.
Richard D. Walter, M.D.
Walter L. Wilkins, Ph.D.
Leonard J. Zunin, M.D.

30TH ANNIVERSARY REVIEW

Introduction

The Naval Health Research Center, one of eight laboratories supported by the Naval Medical Command (previously the Bureau of Medicine and Surgery), and administered through the Naval Medical Research and Development Command, was established effective 1 June 1959 (SECNAVNOTICE 5450 Op-09B23 Serial 360P09B2 dated 8 May 59). Originally designated the Navy Medical Neuropsychiatric Research Unit, its assigned mission was "To conduct research in the area of neuropsychiatry as it applies to the naval service." (BUMEDINST 5450.64B).

In recognition of the broader research programs which developed over the years, effective 1 September 1974, by authority of the Chief of Naval Operations, the activity was redesignated as the Naval Health Research Center (OPNAVNOTE 5450 Ser 09B33/4248 dated 5 Aug 74). The revised mission statement read: "To conduct research and development on the medical and psychological aspects of health and performance of naval service personnel; and to perform such other functions or tasks as may be directed by the Chief, Bureau of Medicine and Surgery." The Center for Prisoner of War Studies (CPWS), established in 1973, was disestablished in 1978. The Center's infectious disease program was terminated in 1983 due to transfer of this responsibility to the Army.

During the past decade, research has expanded into many fields as they relate to the medical aspects of physical and psychological stresses of naval environments: preventive and clinical psychiatry, neurology, biochemistry, occupational medicine, psychophysiology, exercise physiology, health psychology and social psychology.

The current Mission and Functions per NAVMEDCOMINST 5450.10 are as follows:

Mission. To support fleet operational readiness through research, development, test and evaluation on the biomedical and psychological aspects of Navy and Marine Corps personnel health and performance; and to perform such other functions or tasks as may be directed by higher authority:

Functions. As directed by the Commander, Naval Medical Command and exercised through the Commanding Officer, Naval Medical Research and Development Command, Bethesda, Maryland:

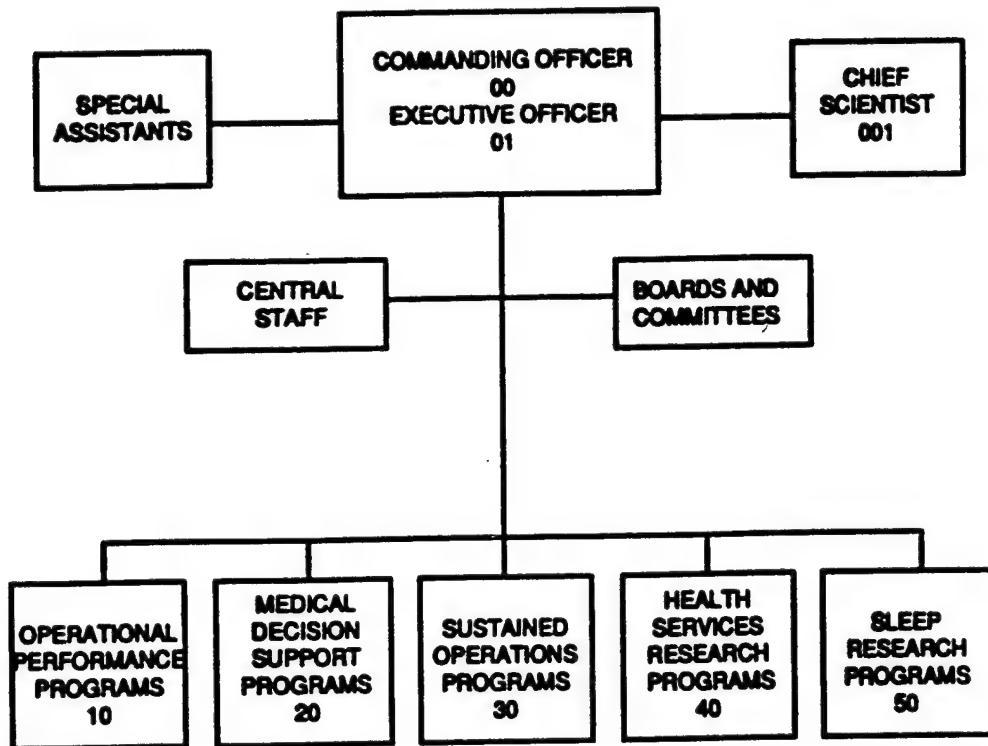
- a. Conduct occupational health and safety studies in the naval service to: identify environmental hazards in the workplace and aboard ship; assess the impact of potentially harmful agents or conditions on health and performance; determine causal factors in illness and accidents; and to develop cost-effective intervention strategies.
- b. Maintain data files of medical and service history information for all naval personnel to: serve as the basis for longitudinal health studies on morbidity, disability, and mortality in relation to demographic, occupational, environmental, psychological, and service history variables, identify health and safety risks to naval personnel; and to assess the impact of chronic disease on performance and retention.
- c. Conduct studies on the unique psychological, physiological, and environmental stresses which place demands on performance and biochemical homeostasis of Navy and Marine Corps personnel in operational environments; identify the physical, mental, and emotional requirements for maintenance and enhancement of performance during sustained military operations; and develop supportive programs for augmentation, restoration, and maintenance of physical fitness to enhance military job performance.
- d. Conduct research to quantify the physiological and performance effects of occupational and environmental conditions, pharmacological agents, and certain clinical entities which may enhance or impair health and performance in operational settings.
- e. Conduct studies on the epidemiology, rapid diagnosis, prevention, and control of infectious agents that adversely impact upon the health and performance of naval service personnel.
- f. Conduct studies of naval health care facilities as complex organizations which must coordinate activities of professional and support personnel to provide health care and assess influences on the cost, quality, and effectiveness of health care provision in shipboard and shore facilities; develop information systems relating to Navy medical health care provisions for management, clinical, and research purposes.
- g. Develop biomedical engineering systems to: improve performance and physical fitness among naval service personnel; augment the quality of health care onboard ship and within naval shore facilities; and enhance casualty assistance and medical records management procedures in combat operations.
- h. Provide effective liaison between Navy medical research and development efforts and WESTPAC Fleet and Marine Corps activities.
- i. Provide or undertake such other appropriate functions as may be authorized or directed by higher authority.

The Center is located in its original location on Point Loma, in San Diego, California as a tenant of the Naval Ocean Systems Center, currently occupying six barracks buildings. Additional off-site facilities include a psychophysiology laboratory at the Naval Hospital, San Diego, an exercise physiology laboratory at the Naval Training Center, San Diego, and an experimental laboratory at the Marine Corps Mountain Warfare Training Center, Pickle Meadows, California. The location of the Center places it close to many military groups--recruits, patients, special training groups, and Marines and sailors in the surface, submarine, air, and shore communities. The Center is also close to the research facilities of the Naval Military Personnel Command.

The Center currently has a staff of 106, including professional personnel from the areas of psychology, physiology, biology, medicine, anthropology, and epidemiology. The Center has become well known for its work related to health and performance in the Navy and Marine Corps. NHRC has disseminated information to the civilian medical and psychological community, as well as the military community, through publications in scientific and medical journals.

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Organization Chart



DEPARTMENT PROGRAMS

The research interests of the Center are carried out by five research departments:

Operational Performance Programs, Code 10

Medical Decision Support Programs, Code 20

Sustained Operations Programs, Code 30

Health Services Research Programs, Code 40

Sleep Research Programs, Code 50

The responsibility of each department is as follows:

Operational Performance Programs (10)

Research efforts began at the Center in 1979 as the Work Physiology Branch.

This Department carries out research assessing relationships among physiological, psychological, health, nutrition, and physical fitness variables and their effects on performance of Navy and Marine Corps personnel in a variety of operational environments. Based upon research findings, this Department develops programs to measure and prevent degradation of military performance, enhance restoration of operational capability and develop standards for the evaluation of operational readiness of Navy and Marine Corps personnel. Attention is focused on the work demands and physiological effects of special warfare operations.

Medical Decision Support Programs (20)

Research efforts began at the Center in 1986 as part of the Environmental and Social Medicine Division.

This Department :

- * plans and conducts research programs designed to study the processing of medical information. Methods that enhance the processing and analysis of medical information are developed and evaluated to determine how available data can be consolidated and be presented in a way so the information can be comprehended and communicated rapidly.
- * develops rapid retrieval and statistical forecast methods to project morbidity in Navy and Marine Corps populations. Methods for providing medical personnel with timely medical diagnosis or treatment information are developed, and methods for maintaining the continuity of patient care as well as the management of illnesses and injuries are studied and evaluated. These medical decisions support capabilities provide medical planners the information needed to manage and allocate medical resources effectively.

Sustained Operations Programs (30)

Research efforts began at the Center in 1979 as the Environmental Physiology Department and evolved into the present program.

This Department investigates the unique demands placed upon Navy and Marine Corps personnel by their operational environments and conducts research on psychological, physiological, and environmental stresses as they relate to human performance and how they impact on biochemical homeostasis. Essential to this work is the identification of the physical, mental, behavioral, and man-machine interface requirements for successful performance during sustained military operations. Included in this research effort is the development of improved performance assessment techniques and counter degradation measures for use during operational/environmental extremes.

Health Services Research Programs (40)

Research efforts began at the Center in 1968 as the Biochemical Correlates Division and evolved from the Stress Medicine Division to the Health Psychology Department, and is partly staffed by members of the former Environmental and Social Medicine Department.

This Department applies scientific theories, principles, and methods to research in the promotion and maintenance of health, the identification of etiologic and diagnostic correlates of health, illness, and related dysfunctions, and the analysis and improvement of the naval health care system, thereby providing data to aid in Navy health policy formation. In addition to studies of correlates of illness in selected naval populations, the Department conducts research on naval health care facilities to examine the organizational factors associated with effective, high quality health care delivery in shipboard and shore-based environments. This Department maintains an HIV registry for the Naval Medical Command and conducts epidemiologic analyses to support sound health care practices.

Sleep Research Programs (Code 50)

This department was originally the Psychophysiology Division, established at the Naval Hospital, San Diego, in 1960. The "sleep lab" as it has been referred to, was located at the Naval Hospital because initial research projects were concerned with brain activity, seizure discharges and behavior to determine whether seizure discharges were associated with disruption of performance and changes in activity in somatic and autonomic nervous systems.

Currently this Department conducts research on the physiological, behavioral, and performance aspects of the health physical readiness, and emotional fitness of Navy and Marine Corps personnel. The research will investigate both the exogenous and endogenous factors which affect human performance, health and military effectiveness. Sleep as a factor in Navy and Marine Corps operations will be investigated in an effort to maximize performance and promote health in service personnel. The goals are to quantify the physiological and performance effects of occupational/environmental conditions, pharmacological agents and certain clinical entities which may impair health and performance in operational settings. Areas of investigation include, but are not limited to, the behavioral effects of environmental toxins, the psychophysiological aspects of atypical work environments, the effects of pharmacological agents on performance and also the effects of disorders of arousal and sleep on personnel effectiveness.

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Thirtieth Anniversary Program

Naval Health Research Center
Friday, 9 June 1989

0800 Coffee and Rolls

0830 Welcome, Commanding Officer, NHRC
CAPT Robert D. Chaney, MC, USN

0835 Greetings, Commanding Officer, Naval Medical Research and Development Command, CAPT James N. Woody, MC, USN

0845 Messages from Admiral Sears and Honored Guests by CAPT Chaney

0855 Message from Senator Wilson by CDR Larry M. Dean, MSC, USN
Executive Officer, NHRC

0900 Introduction, Chief Scientist, NHRC, Dr. E. K. Eric Gunderson

0905 "Founding of the Laboratory" by John Rasmussen, CAPT MSC USN (Ret.)

0925 The Early Years "NHRC and the History of Navy Psychology" by
Frederick L. McGuire, LCDR MSC USN (Ret.)

0940 "Early Years" Message from Ransom J. Arthur, CAPT MC USN (Ret.)
by CDR Dean

0950 Impact on Navy Medicine and Fleet Operations by Paul D. Nelson,
CAPT MSC USN (Ret.)

1015 Coffee Break

1030 Message from Mayor O'Connor by Willie Blair

1050 Significant Achievements by J. Eugene Lang, CAPT MC USN (Ret.)

1130 Exhibits and Displays

1145 Lunch

1300 Awards

1330 Highlights of Current Programs, CAPT Chaney and Department Heads:
Code 10, Dr. James Hodgdon
Code 20, William Pugh
Code 30, LCDR Guy R. Banta, MSC USN
Code 40, Dr. D. Stephen Nice
Code 50, Dr. Paul Naitoh

1430 Coffee break and Cake Cutting Ceremony

1445 Highlights continued

1645 Adjourn

1700 Social Hour



Founding of the Laboratory

John E. Rasmussen, Ph.D.

It obviously is rewarding for me personally to realize that my brainchild of 30 years ago is alive and well. I also was very pleased to be asked again to speak on the founding of The "Unit." As the history and circumstances surrounding the founding of the Center have not changed, I am going to present essentially the same paper I gave 10 and 20 years ago. This may be somewhat repetitious to those who were here 10 years ago, but it also reduces that distortion that might be associated with either senility or retrospective falsification.

In some respects the founding of the Center involves a sequence of sea stores which many of you have heard at one time or another. However, there was a broad conceptual scheme or master plan involved in the location and structuring of the lab and the focusing of its research program.

In the mid-50s, when the idea of an in-service NP Research Program arose, there were a few isolated and unrelated in-house efforts such as at New London, Harry Wilmer's work at Oakland, and Grant's Camp Elliott studies. Almost without exception, establishment of these projects, the degree to which they were supported by the Navy, or survived, was dependent on the charisma of the PI and his political skill in turning clinical into research billets. The bulk of the Navy's NP research program was contracted to universities through the Office of Naval Research.

This approach was reasonably acceptable for the first ten years after the war. Many of the people doing the work on ONR contract had been active in the Navy psychiatric program during World War II. Hunt, Wilkins, Wittson, and Rohrer formed a rather unique foursome which was readily available to cope with BuMed's NP problems. However, at the same time it became apparent that all of these people had university commitments which limited the demands that could be made upon their time. Moreover, their professional interests were changing with the passing of time and the Navy itself was changing. With few exceptions, contractors outside of this small group

did not appear to appreciate the Naval culture in which they were operating, so that all too often the results of their studies were of limited practical value in dealing with contemporary issues in BuMed's clinical program. At the same time, research administration was a rather hit-and-miss affair conducted as a part-time activity in the psychiatric branch of BuMed. Historically, this branch was staffed by one psychiatrist and one clinical psychologist. Because of the fact that the clinical program was run out of the same office, and by definition received first priority, it was not possible to spend the time which would be necessary to effectively manage a research program.

At this time the Chief of Psychiatry in the Navy was a remarkable and truly gifted individual from Tupelo, Mississippi, by the name of George Raines. Dr. Raines was the first military medical officer to ever be president of a medical specialty board, and at the time of his death was in line for the presidency of the American Psychiatric Association. I was serving as head of the Clinical Psychology Section. One evening early in 1957 when Dr. Raines and I were visiting the training centers and hospitals here in San Diego, I made a chance remark that our research program was less than adequate, and we either should have a first class effort or get out of the research business. Dr. Raines responded in his inimitable manner with the comment, "John, if you are so damn smart why don't you do something about it?" To borrow a phrase from Walt Wilkins, for the next five years I went to work every morning wondering if today was the day I was going to be found out.

In spite of the casual way in which the program started, Dr. Raines never wavered in the support he gave in getting the program under way. And I might add that after Dr. Raines' death, Jack Nardini, who succeeded him at BuMed, continued to give the same type of support.

It was at least a year after the idea of shifting from a contract to an in-service research program was formulated before a decision was made to establish the San Diego Unit. This interim time was devoted to looking at other in-service military research programs and at civilian institutes. Having never been involved in developing anything of this nature, it seemed only logical to draw upon the experience of others. At the same time, steps were taken to formulate a panel of consultants to assist in getting the program started as well as to advise on its operation once it had been established. The original panel consisted of Frank Braceland, Howard Rome, Bud Busse, Cecil Wittson, Frank Forester, Bill Hunt, John Rohrer, Walt Wilkins, Denny Smith and Ken

MacCorquodale. Unequivocally, without the assistance of this consultant group the Navy's new NP research program would never have gotten off the ground. However, I seriously doubt if any of the panel members are really aware of the degree to which they shaped and influenced the program.

A number of fundamental premises underlying the broad NP research program were formulated during the early planning period. For example, after rather extensive consideration and debate we developed the title of "Neuropsychiatric" Research Program because nobody could precisely define the term neuropsychiatry. Thus, we would be free to include work ranging from neuroanatomy through biochemistry to economics and anthropology in the program without having to justify where it fit.

It was decided very early that there would be only one Navy NP research program. Planning would be on a broad programmatic basis rather than in terms of having a number of independent or isolated laboratory efforts. Responsibility for a number of broad but related problem areas would be assigned to a single research activity, rather than have a diluted effort carried on at several different facilities. A decision also was made to ignore the distinction between basic and applied research and consider that a combination of both ultimately would be necessary to make advances in the broad problem areas.

Drawing on the experience of other services, primarily the Army, the Navy program was designed to be a highly directed but non-directive effort. In essence, the laboratories established under this program would not be free to select their own problem areas; rather, broad problem areas would be assigned to them. The nature of the assignment would be such that the investigator would have total freedom to define and attack problems as he saw fit. It was anticipated that this approach might make it possible to have the best of both worlds. By having a directed program, it should be possible to ensure responsiveness to the needs of the service. At the same time, the scope of the problems assigned would be broad enough to ensure that investigators had total freedom in their actual research endeavors.

This marked a radical departure from the tradition of the Navy Medical Department. In retrospect, I am somewhat surprised that Dr. Karsner, who was then the Surgeon General's Research Advisor, did not scuttle such a heretical departure from tradition.

Rather than build one large NP research center, it was considered desirable to develop several relatively small, specialized units. There were two major reasons for this approach. First, because of the diversity of the problems to be studied in the program there was not a single geographic location which could be considered optimal. Secondly, smaller units enhance communication between the investigators and at the same time seem to require less administrative support. We were particularly concerned that the focus of our operation be on research, not on administration.

A final issue considered at this stage of the program development was that of establishing a strong link or bond between the clinical and the research program. It was desired not only to have a mechanism whereby problems arising in the clinical program could be identified and transmitted to the research community but it was considered equally important that a mechanism exist whereby the results of research endeavor could be fed back into the clinical or operational programs. This was accomplished by the BuMed NP research program manager being given two hats; one in the psychiatric branch of the Professional Division and the second in the Research Division.

The above guidelines formed the philosophical basis for the formal research program. Next came the process of their implementation. As a first step, a list of some 12 major clinical problem areas was developed by the consultant panel to provide the basis for the in-service program. An attempt was made to arrive at some sort of priority ranking of the problems, both in terms of their criticality to the clinical psychiatry program and the feasibility of their solution with a modest research investment. Because of the Navy's emphasis on preventive psychiatry, programs such as the psychiatric assessment of recruits, selection of personnel for specialized or stressful duty, etc., assumed first priority.

It soon became evident that at least one of the new psychiatric research facilities would have to be located in an area where there was ready access to recruits and to fleet populations. Thus, it is not surprising that San Diego very early on became a prime candidate for location of the first Unit. In 1958, when a decision was being made as to the choice of the geographical areas, San Diego had both Navy and Marine Corps Training Centers, a Navy prison, a major hospital, and was the headquarters for a large segment of a Navy Fleet and Air Wing. In fact, the only populations not available at that time were officer candidates and female recruits.

Three possible sites in San Diego were considered.

First, space was offered at the Naval Station; secondly, the Naval Hospital volunteered facilities; and finally, consideration was given to the World War II surplus barracks buildings on Point Loma, which for the most part, were vacant.

(1) The industrial complex of the Naval Station was considered to be an improper atmosphere for a research unit; and this site was dismissed without major or serious consideration.

(2) The Naval Hospital constituted a somewhat different situation. Admiral Chrisman's offer of space finally was declined on two points. First, we were concerned that in the event of expansion in hospital space needs the research unit would be in jeopardy. Secondly, we were uncertain as to whether locating the unit at the hospital might not create a morale problem. We would easily envision a situation arising where the clinicians would resent the somewhat slower pace of the research unit and its staff.

(3) Thus, it was considered that Point Loma combined the best of all worlds. The site was sufficiently remote to preclude the staff readily being called upon to provide clinical services. At the same time, it was not so remote as to preclude collaborative work at the hospital and operational unit when indicated.

In looking back I am somewhat amazed at how smoothly the establishment of the San Diego Unit proceeded. By this time Dr. Raines had retired and Jack Nardini was Chief of Psychiatry. Neither of us had any experience in establishing new commands in Navy research or otherwise. Dr. Yarborough, who at that time was Director of the Research Division in BuMed, was not fully convinced that psychiatry was here to stay as a clinical specialty, so this naturally raised a question in his mind as to how much money should be invested in NP research. There were, however, two people in the Research Division who were willing to stick their necks out and give the required support. One was Captain Jim Kingston, who had a profound influence on Navy medical research as well as on the professional development of many of us in this room. The other was Dr. Howard Karsner, a wonderful and very irascible man in his late 70s who had retired as Professor of Pathology at Western Reserve and was acting as the Surgeon General's civilian consultant in research. Without the support of these two individuals, we certainly would not be here today. Their support came in many forms, ranging from

signing papers when Captain Yarborough was away to fiddling the research budget for the next year so there would be money to operate the Unit if we could get it established.

Once it was agreed that The Unit should be modeled after the Naval Medical Research Units One, Two, Three, and Four, things began to fall in place rather rapidly. In drawing up the papers for the request which had to go to the Secretary of the Navy for the new command, was had focused so much attention on the details regarding The Unit and organization, per se, that we neglected to choose a name. Actually, the name was chosen by the administrative officer in the Planning Division of BuMed. As I recall, he was going over the draft which was to be typed for the Surgeon General's signature and asked what we wanted to name The Unit. I indicated that it did not make much difference what we called it as long as we got the paper signed that day. I had twinges of regret over this bit of impulsive behavior every time I saw the redundant title of a Medical Neuropsychiatric Research Unit on a reprint or report.

At this point we were sure there would be a program in San Diego and the time had come to select a staff. Our philosophy was that we would select the key man, the technical director of the organization, and permit him to fill out the remainder of his staff. In keeping with our practice of breaking Navy tradition, The Unit was established so that the technical director would be the guiding light and the commanding officer by definition would have a secondary role. This was done for two reasons:

—First, we only had one psychiatrist on active duty at that time who was really qualified to direct a research program. That was Sam Thompson, who was Chief of Service at Bethesda and who obviously was not going to be assigned a research unit being started on a shoestring.

—Secondly, it was considered that such a small organization really would not require the full-time attention of a Commanding Officer. It was our hope, therefore, that the Commanding Officer would do research and work under the guidance of the Scientific Director.

Walter Wilkins was one of the original members of the Surgeon General's consultant panel and in this capacity was spending a day with me in Washington during the fall of 1958. After work we were sitting in the Officers Club in Bethesda talking about various problems of the world when Walter commented about his experiences of

the previous day. As I recall, he had spent the day with the Dean at St. Louis University trying to justify a new calculating machine for the Psychology Department. He summarized all of this activity by commenting that after 25 years of being a school teacher he was spending his time arguing over paper clips. A short time later in the conversation he further lamented that the State of Missouri had condemned his house to build a super highway which was to pass through the middle of the property. It struck me that the obvious solution for him was to leave the troubled world of St. Louis and move to beautiful San Diego where there would be no problems of money, budgets, equipment, deans, or super highways.

Out of this chance conversation we recruited one of the two individuals who played such key roles in putting The Unit on the map. I might add that Walt really came to us almost on a verbal promise. He took a substantial cut in salary with the understanding that I would do everything possible to obtain a Civil Service rating for him which would be commensurate with his university income. Fortunately, it was possible to eventually follow through on this commitment.

Thus, 30 years ago this month, The Unit was commissioned. Jim Kingston managed to find \$30,000 in the BuMed research budget to equip the laboratory and support it for the first year of its existence. The original furniture and equipment all were excess from the Navy prison at Camp Elliott and other local activities. Through the superb cunshaw activity of Bill Wright and several other staff members, it was possible to get started. Now it can be told that the \$5,000 in supplementary funds required for the first year's operation came from the money budgeted for BuMed's janitorial supplies. At times I had some doubts as to the legality of certain aspects of the equipment acquisition, such as the Navy sedan which had been surveyed but turned up at The Unit after being overhauled and painted. Discretion being the better part of valor, these questions were never raised.

The NP Research Unit obviously flourished and within the first 10 years became one of the world's most prestigious centers devoted to military neuropsychiatric research. It gained similar respect both in the Navy Medical Research community and in the line.

Obviously, the credit for the success of The Unit goes not to the founding fathers in Washington but to the professional staff which has made the program grow and live. Certainly, Ransom Arthur and Walt Wilkins formed a unique team, as shown by this

product of their leadership. Parenthetically, we might round out the founding and early history with the story of how the second key individual in the early history, Ransom Arthur, got assigned to The Unit. Very early in the formulation of the new NP research program we decided that our military staff associated with research should rotate between research and clinical billets. Dr. Nardini agreed to my identifying three of the residents in Psychiatry at Bethesda who would subsequently be associated with the program. These were Ransom, Earl Brown, and Roger Reinhart. Ransom went from his residence to the Naval Hospital, Oakland. The decision for him to move to San Diego was reached while we were in the swimming pool at Oakland. He never returned to a clinical billet. Obviously, Ransom did well. Earl Brown never got to a research billet but he hasn't done badly in the Navy in spite of not having been assigned to the health research center.

In looking back to 30 years ago it seems to me there are only three things which turned out somewhat differently than we expected.

- o First, we clearly underestimated the importance of the Commanding Officer. Ransom Arthur's leadership demonstrated how far wrong we were in our early planning.
- o Secondly, I don't believe we anticipated the unusual success of The Unit.
- o Finally, the rotation of military staff between clinical and research billets didn't work.

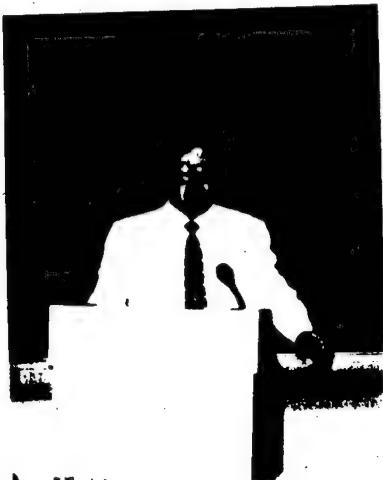
At the 10th Anniversary I closed with the thought that it was time to change the name of The Unit, both to do away with the ridiculous redundancy and to reflect the scientific stature it had achieved. During the subsequent 20 years the name has been changed and mission broadened. This represented proper evolution and progress.

After presenting the early history for a second time at the 20th anniversary I closed with a plea to re-examine the research priorities of the Center... "develop new ideas; bolster, shift or close out existing programs and change professional staff composition." These comments came from the awareness that applied research centers such as this do not survive if they are not on the cutting edge of science and 100% relevant to the sponsoring organization's current needs.

Ten years after making this point, it has indeed been a privilege to hear this morning's speakers and learn of the rather remarkable evolution which has occurred in the Center's programmatic emphasis. I predict the Center will continue to grow and prosper. Hopefully, I'll be invited to attend the 40th anniversary celebration and maybe once again read these unchanging remarks on the "Founding of the Center."

Thanks for inviting me.

John Rasmussen



NHRC and the History of Navy Psychology

Frederick L. McGuire, Ph.D.

My main claim to fame seems to be that no one remembers me very well. As Dr. Gunderson noted, no one is sure when I retired, or whether I was the first or second uniformed psychologist to join the Unit. (Actually, LT Al McMichael preceded me by about two weeks, but he cheated by taking leave from the Naval Training Center before he received his official orders.)

I guess I should have suspected something was not going right when I noticed that today's printed program had demoted me two full ranks. As a way of pointing out to my students that we should not overestimate our importance to an organization, I sometimes quip that in my own case whenever I departed and then returned for a visit, I found not only had the organization not collapsed in my absence, but did not even show the courtesy of temporarily malfunctioning! In this context, I guess I should not have been surprised by today's scenario.

In spite of this low profile I have been in close contact with the Unit since I left in 1960 to become another kind of "plank-owner" as the first psychologist at the University of Mississippi School of Medicine. In 1965 I played a similar role at the University of California, Irvine (UCI), College of Medicine, from which I recently retired. During these years I have stayed in contact with your organization. In addition to personal visits and Active Duty Training assignments I have read your reports, picked your brains, and most notably, maintained a close working relationship with Dr. John Plag. John consulted with me frequently at UCI, and in developing a prediction model for highway accidents I drew heavily upon his work in predicting successful enlistments in the Navy. I even published an actuarial table for predicting which drivers would be involved in accidents, a table which bears a striking resemblance to those published by John and his colleagues and another example of how Navy psychology has contributed to the field-at-large.

One reason I have been asked to comment this morning is that I have written a book. As we all know, when that happens you are very likely to be a guest on a talk show. Another reason is that a large percentage of you here today are mentioned in

the book. (Now, if that doesn't catch your interest, just think about the fact that none of you can be sure that I told the truth about you or even if I spelled your name right.) It is likely to have a limited distribution, but since it contains themes of both sex and violence, it will very likely generate at least some interest. It is titled Psychology Aweigh! A History of Clinical Psychology and Its Development in the United States Navy, 1900-1988, and is scheduled for publication late this year by the American Psychological Association (APA), very possibly as part of the publication list celebrating their upcoming centennial celebration.

The idea for the book came during a Navy Psychology Day held at Bethesda Naval Hospital during the 1986 meetings of the APA in Washington, DC. Attendees included a number of active duty psychologists, members of the Naval Reserve, and representatives of the other services. As is common at such meetings, one of the main topics of conversation was recalling "the good old days," and it became evident that there existed a huge gap in our so-called "corporate memory." The collective experience of the clinical psychologists then on active duty extended back less than 20 years, and the "memory bank" of many of the important years of clinical psychology in the Navy now resides only with retired and/or reserve personnel and/or is scattered widely in a variety of obscure publications. Furthermore, it became apparent that many sources had a limited life span, as evidenced by the January 1986 death of William Hunt, one of the first uniformed Navy clinical psychologists on active duty in WW II (as was our own Walt Wilkins) and an ardent supporter of Navy psychology during his successful career in civilian life. I mentioned to the group that "someone should write a book about us," an observation which received hearty approval, followed by a long, pregnant silence during which it seemed that everyone in the group was staring at me! Thus was created a project which will have dominated my professional life for three and one-half years and which has caused me to frequently swear to myself that never again will I utter in public those fateful words "someone ought to write a book!"

It may surprise many of you to know that clinical psychology was practiced in the United States Navy as early as 1900. (Actually, I have data from the year 1899, but the year 1900 made for a better title for the book.) In fact, it was practiced before the term "clinical psychology" was coined in 1907 by the founder of the field, Lightner Witmer, of the University of Pennsylvania. You might ask, "how can this be?" The answer lies in the fact that for more than 70 years we have been unsuccessful in arriving at a definition of clinical psychology, in spite of the fact that an endless number of articles

and formal conferences have made herculean efforts to do so. However, an operational definition has emerged and proven to be quite useful, namely, that "clinical psychology is what clinical psychologists do." Even in his 1907 paper Witmer stated that "clinical psychology is not the exclusive province of the psychologist," and specifically mentioned psychiatrists and educators as two of the professions most likely to become active practitioners of this new specialty. These attempts at definition have had a lot in common with the efforts of the U.S. Supreme Court to define pornography, during which one justice made the famous comment--"I may not be able to define pornography but I know it when I see it." This has led to my own observation that "I may not be able to define clinical psychology but I know it when I see it."

Within this frame of reference we find that the first practitioners of clinical psychology in the United States Navy were medical officers, most of whom were trained at St. Elizabeth's Hospital in Washington, D.C., as alienists as psychiatrists were then called. Between 1900 and 1920 much of their work centered around their attempts to screen naval recruits, a process which later became the primary reason for recruiting clinical psychologists during WWII and one of the most noteworthy activities in the history of the Naval Health Research Center. In fact, one of the major sections of my book reviews the history of recruit screening and, of course, in great detail the work done here at NHRC. Among other things, these early medical officers produced some rather ingenious attempts to adapt for recruit screening the then-new Binet-Simon IQ tests. Time prevents me from elaborating on these historical contributions of the Navy Medical Department, but for those of you interested I might mention that they are documented in great detail in my aforementioned book.

This book naturally includes a section on the history of the Navy Medical Neuropsychiatric Research Unit, now known, of course, as the Naval Health Research Center, and sometimes called "The House that Walt Built." To most of us it has always been known simply as "The Unit."

In writing a book about the history of Navy psychology I came to realize that The Unit has especially reflected one of the characteristics of the Navy-at-large. Regardless of the title or professional identification of the individual members of its crew, "The Unit has been a shining example of doing what clinical psychologists do." It has clearly demonstrated that not only is clinical psychology not the province of any one profession but has shown what can be accomplished when a wide variety of disciplines and people

of mixed temperaments put aside individual ambitions and work together for common goals and in the service of a common mission, itself one of the finest and oldest traditions of the United State Navy.

The Unit was founded by men of wit, creativity, and enthusiasm, and it was indeed fortunate that its first leader encouraged these same qualities among the staff. Walt Wilkins is also most quotable, and over the years I have plagiarized several "Wilkinisms," and because they often had a point to make, sometimes in parable-like form, I sometimes used them in talking to my students or staff. For example, one day during the first month or two of The Unit's existence we had a meeting of the professional staff—all four or five of us—and Al McMichael presented a paper outlining some of the future plans for The Unit. In my best graduate student manner I made a few analytical but somewhat negative observations. At this point Walt interrupted and said: "No, no! Our job is not to criticize Mac but to exploit him!"

I resigned my commission in the Regular Navy in 1960, and one of my considerations was the fact that I did not have complete faith in the ability and integrity of the promotion boards. Years later, when I was promoted to the rank of Captain in the Reserves I recalled Walt's own observation when he had been promoted to the same rank. He noted: ..."For many years I was convinced that Navy promotion boards consisted of a bunch of morons who didn't know what they were doing ...but after being promoted to Captain I realized that they were obviously men of integrity, ability and intelligence."

Another source of good humor was the late Bill Wright, whom I describe in my book as ..."The Unit's first Administrative Officer whose creative application of government regulations served the organization well for many years." As previously noted today by John Rasmussen, Bill was also one of the Navy's most accomplished "cumshaw" artists. Bill retired from the Navy shortly after The Unit was formed. He had family ties in the Chicago area and moved there for a job with, I think, Zenith Radio. One day during his first winter on the job he left his office early because of bad weather. He fought his way through a blizzard and arrived home about 9 or 10 o'clock at night. The next day he phoned The Unit and applied for a job in the office. He bought a house in the Clairemont area, and he nailed to the wall of his garage a snow shovel. Across the blade he painted in red letters the word "THINK!".

I do not describe these episodes just to be entertaining but to make a point. Psychological research has shown that one of the most significant characteristics of creative people is a good sense of humor. As I view The Unit from an historical perspective it is obvious to me that not only were the founders men of wit and enthusiasm but that these characteristics helped to provide a work environment that has been largely responsible for the creative output of The Unit.

I can think of many other and perhaps more spectacular examples of how the early members of The Unit set the tone for years to come with their creative frivolity and good humor, especially during such times as the traditional Navy Party at the annual APA meetings. I recently reviewed some color slides I had taken during those sessions and toyed with the idea of presenting them here today. However, cooler heads prevailed (i.e., my wife). It was pointed out that since such memories and documentation were generated in an environment of biochemical imbalance on the part of the participants, they should be reserved for a more appropriate forum. I will simply summarize by saying that even before they had computed their first mean or standard deviation these founding father had launched The Navy Medial Neuropsychiatric Research Unit with a flair and with energy, a pattern, which I am happy to say, survived the obvious trauma of my personal departure.

Fred McGuire

Message from
Ransom J. Arthur, CAPT MC USN, Ret.

9 June 89

To current and former staff...

On the occasion of the 30th Anniversary, Fran and I want to extend our congratulations to All Hands. We will always treasure our splendid years at the Unit and we remember all of you with great respect and enduring affection.

Anniversary Attendees...

Congratulations to the Naval Health Research Center on its 30th Anniversary. From its inception as the U.S. Navy Medical Neuropsychiatric Research Unit, the Center has been dedicated to serving the Navy and Marine Corps through its provision of useful information and recommendations derived from sound research. The Center has been equally dedicated to the proposition that scientific knowledge arises from the exercise of creative imagination, disciplined by the quantitative methods of rational inquiry. Ideas are formed in the minds of individuals and are fostered by an atmosphere of freedom and are refined by rigorous challenge and open interchange. The Center attracted those of independent mind, gave them a chance to develop their ideas and provided an environment of both support and criticism, occasionally forceful, to help insure that work of merit was fostered and that which lacked gravity or proven veracity was discarded.

Through it all, we shall never forget the primary goal of helping the sea services accomplish their mission of national defense. I know the Center's tradition, now 30 years old, of untrammeled inquiry, exuberant criticism, rigorous methods, and proven utility to the naval service will continue through new generations.

I will always be proud of all my active service in the Marine Corps and the Navy but no tour of duty gave greater pleasure or sense of satisfaction than did those golden years on Point Loma at a happy and productive Research Center filled with wonderful people, with the great Pacific on one side and a harbor dotted with men of war on the other, all under a sun that never ceased to shine on our endeavors.

A final salute -- May good fortune and fair seas attend the Center in the years to come.

RANSOM J. ARTHUR, M.D.
Captain, Medical Corps,
United States Navy, Retired

Former Officer in Charge and Commanding Officer
U.S. Navy Medical Neuropsychiatric Research Unit, 1963-1974

Professor of Psychiatry and Biobehavioral Sciences, *Emeritus*



The Impact of the Naval Health Research Center on Navy Medicine and Fleet Operations

Paul D. Nelson, Ph.D.

"What have you done for the fleet today?"

That question, posed as a frame-of-reference for Navy and Marine Corps managers on the Washington scene in the mid-1970's, was a challenge issued by the Commander, Naval Material Command of the time, Admiral Isaac Kidd, Jr., a Navy family name not unfamiliar to San Diegans. The question is timeless, of course, and as such it is as appropriate to ask today as it was then. And, though we reminisce this morning in celebration of the thirtieth anniversary of the program now identified with the Naval Health Research Center, the presentations by the laboratory's staff scheduled for this afternoon will go much farther towards answering that question that I might even begin to do in the present hour. Even presentations subsequent to mine this morning on "significant achievements" of the laboratory will reflect, I am certain, contributions to medicine and the naval service emanating from research at this laboratory.

Indeed, though I am honored and flattered to be asked to speak on the impact that the Naval Health Research Center (and its predecessor Navy Medical Neuropsychiatric Research Unit) has had on Navy medicine and fleet operations, I am much more reluctant to tackle such a task "head on" than I might have been as a more energetic Lieutenant Commander. For one thing, I've forgotten too much. Then, too, I suppose I am humbled much more than I once was, though not yet cynical, about the fate of even the best among our efforts in the face of vast and complex issues. Quite seriously, how do we even assess the impact of research on any type of complex human operation? That is a pivotal question pertaining to the transfer, adoption, and utilization of knowledge and technology to be asked of and, internally, by any research organization in its quest for initial or continued support.

What is meant by the word "impact?" In the manner in which it is used in the title of the topic assigned to me this morning, I trusted that "impact" was intended to convey

a sense of positive, beneficial change introduced into Navy medicine and fleet operations from research of the Naval Health Research Center (NHRC). Webster, on the other hand, suggests a meaning for the word that portrays collision between two forces, perhaps with or without a resultant change in either force.

The veteran of applied research knows something of each of these worlds of outcome. There are indeed those instances in which a problem is raised outside the research community, in the case at hand let us say by those responsible for rendering health care services or for maintaining an element of fleet readiness and operational capability. The problem as defined at that level often is not researchable as phrased, but at least initiates a dialogue between the service provider or operator and someone who represents the world of research. That's rather simply put, of course, but it should suffice for purposes of example. Eventually, in any case, someone has to translate the problem into some researchable questions, a skill in its own right. And, to shorten the scenario even more, the researcher goes back in time with information that may or may not be useful to the person with the problem. (With any luck, of course, the person who first raised the problem is still there and still has interest and hasn't forgotten what problems was raised in the first place--all rather risky assumptions, I might add.) But, perhaps in the best of those circumstances some trace of positive influence in problem-solving might come from research applied to an operational problem.

In the early days of the laboratory's work, I suppose this phenomenon might have been illustrated in: research that resulted in psychological screening guidelines for Operation Deep Freeze; procedural guidelines for helicopter pilots to reduce risks of performance and physiology dysfunction induced by flicker fusion; selection and training criteria for underwater swimmers and demolition team members; or, clinical diagnostic procedures in patients presenting symptoms of neurological or psychiatric consequence. In each instance, as I imperfectly recall, the laboratory with its research capability was called upon or tasked by the operational service community.

The Navy and Marine Corps recruit studies of the 1960s, perhaps in many ways the hallmark of the laboratory's early research, were not so much prompted (if my memory serves me correctly) by the line community or the practitioners of Navy psychiatry, as they were by a few psychologists familiar with the history of psychiatric screening and psychological adjustment problems among first-term enlistees. Classic in their design as field experiments, and replete with outcomes far greater than the initial questions

asked, those cohort studies of about 25,000 first-enlistment sailors and marines resulted in the development of relatively simple, but standard and highly useful (it seemed to us) guidelines for the Chief of Naval Personnel and the Commandant of the Marine Corps. In the final analysis, however, I remember John Plag's frustration when, after a seemingly enthusiastic briefing of Navy flag officers, a Master Chief Petty Office (the "bottom line" for product implementation) remarked that the "odds for effectiveness" seemed like common sense--at least what the recruiters had been doing all along. The truth, of course, is that they had not been doing all along what John was recommending. But truth and reality in life are not the same; and change of any consequence does not come easy.

John wasn't alone, though. No; Newell Berry and I briefed Marine Corps Headquarters staff also, with similar enthusiasm of the general officers; it was literally at the headquarters career civil service clerk level (again the "bottom line" for implementation) that resistance was most encountered. Perhaps even the generals had found that to be so also; hence, they focused on issues of military command and readiness. Most of all, however, I will never forget that hot muggy summer morning in the mid 1960s when we briefed the Commanding General, Marine Corps Recruit Depot, Parris Island, similarly on the significance of four to five years of research on Marine recruits. He was a man whose 40 years of service were engraved in the lines on his face and whose distinguished career was symbolized by the decorations on his uniform. We were politely received also. He listened attentively and asked a thoughtful question or two, as much to test us as to become better informed. Then quietly, with a sense of wisdom and confidence, yet a kindly twinkle in his eye, he concluded our briefing: "Gentlemen, I am pleased that we have reached the same conclusion through our own means!" (Though deflated in spirit at the moment, I never forgot that event; and later in my career I realized with more of a sense of accomplishment the importance of validating through the methods of our discipline what a distinguished military leader knew through many decades of first-hand, combat-born experience.)

Ten years later, no longer at the Research Unit but in Washington, I had no difficulty representing the research of this laboratory in terms of its potential, if not actual, benefit to the Navy Medical Department and the operational naval service. Nor for that matter did I ever sense being at a loss representing the research at forums attended by those whose lifeblood was research. By that time, also, scientists in this laboratory were engaged extensively with scientists, administrators, military line

community commanders and operators, across disciplines, military services, and nations, in complex longitudinal studies of stress and performance under operational field conditions on land, at sea, and airborne. The nucleus of that endeavor, which resulted at the time in numerous direct benefits to the Navy Medical Department and the fleet, continues today as a major thrust of the Department of Defense behavioral and life sciences research program, the theme being that of performance under continuous, sustained operations.

How did we get there? There are probably many answers to that. But certainly among the essential ingredients are good science and scientists. The support of ingenious technical staff and the commitment of military and civilian team members in the laboratory, in the field, and at headquarters commands is vital as well. There must be effective networking among scientists within and between laboratories, and likewise between scientists and military operators. Much of the time is devoted to problem formulation and specification. The scientist and the military operator must learn from one another, without becoming like one another. The special role played by military officers who understand something of each side, persons exemplified at present by Captain Chaney and Commander Dean, cannot be overemphasized in importance; nor for that matter can the role of the Chief Scientist, as those who know Dr. Gunderson would agree, and the roles of the laboratory department heads by whom we will be briefed this afternoon. These persons individually, and the offices they represent, have the experience of careers as scientist-practitioners to know windows of opportunity for research of potential benefit to science, health care, and human effectiveness in military operations. It goes without saying of course that the headquarters command in principal support of such research enterprises must have comparable vision, commitment, understanding, and patience.

In the final analysis, I conclude that the most beneficial impact of any research laboratory (as is true also for an operational service unit) is its capacity and readiness to respond when needed. That may amount to no more than answering a question or rendering consultation on a problem based on the best information available at the time. It may also be the capability of knowing what questions to ask, and knowing how to address them in an expeditious manner, suited to the needs of the potential user of the information gathered. In still other instances it may be the design and conduct of much more complex research, intended to explore issues of consequence for future operations. Examples of each of these can be found in the history of NHRC. The

example that comes to mind as that which perhaps best illustrates the immediate readiness to respond on short notice with near-term effect to a problem of international significance was the role of this laboratory in advising and otherwise serving the Navy Medical Department and Department of Defense before, during, and after the release of our servicemen captured and interned by the Vietnamese.

Research done well generates knowledge; and knowledge creates options. Indeed, one might argue that the excellence of a research laboratory is reflected by its capacity to evolve in ways characteristic of science and technology. Knowledge begets further knowledge, but not without properly inquisitive minds or the challenge of a problem unanswered. Questions in search of answers also more often than not results in the generation of additional questions. Thus, through the fabric of questions raised and knowledge gained over time, there is a sense of history to the research enterprise, a genealogy perhaps of questions and answers forthcoming, through which there are major strands of continuity, strengthened on occasion by fibers of discontinuity. Herein, unique in its missions among national defense research laboratories, I have described in a generic sense my understanding of NHRC.

We celebrate memories this day, memories of times past, of projects, and of persons who have been important in the life of this laboratory. There are great names among them in the history of Navy medicine, as well as in American psychiatry and psychology. To be sure, the heritage of the past and the opportunities being created today are not and could not be attributable to any one person. In celebrating the history of this laboratory, nonetheless, of its continuity and balance between science and application, and of its insistence on quality in each, I would observe that no one played a more important leadership role for a longer period of time than Walter Wilkins, in his role as Scientific Director. I know that in his heart, when he casually asked us "what we're up to," his question really was "what have you done for the fleet today?" How many times he would remind us that we work for the graduates of an engineering college on the Severn River! Yet, Walt knew the ways to bridge our world and theirs, to guide us in our development as scientist-practitioners. He knew his people, a cardinal principle for every leader. He knew, as Dr. Ashton Graybiel, the distinguished cardiologist and aviation medicine pioneer once put it, "who's on a tear, and who's not." He knew at any time who was ready for a new project and who was steaming a bit off course on one already initiated. And, more than that, he had the vision and patience to understand the difference between short-term and long-term benefits of research, and

the good sense not to confuse the two. He knew for example that if we only focus on what the fleet needs today, we may not be prepared to respond to what the fleet might need tomorrow. And therein, it seems to me, lies one of the greatest challenges to those responsible for any enterprise of research.

I am truly honored to be here today with long-time friends and distinguished colleagues, but no more so than I am privileged to have been a part of the history of this laboratory in its mission to serve the fleet.

Thank you for inviting me.

Paul Nelson

Other Significant Achievements

E. K. Eric Gunderson, Ph.D.

Dr. Richard Rahe and Dr. Eugene Lang, former Commanding Officers, were invited to comment on significant achievements observed during the late 1970s and early 1980s of the command's history. Dr. Rahe although he was unable to attend the anniversary celebration, cited several major accomplishments that stood out in his mind. These were:

- * Development of physical fitness standards for the Navy.
- * Extended biochemical correlates studies of stress, health, and performance including extensive international collaboration
- * Practical applications of sleep and brain wave research to better manage sleep and sleep disorders.
- * Concepts of operational stress that underlie field studies of performance failure and preventive medicine.
- * Development of portable kits for the rapid identification of bacterial infections.

Dr. Lang noted the extraordinary contribution to Navy occupational health and preventive medicine represented by the Navy Occupational Health Information Management System (NOHIMS) which was completed and tested in the mid-1980s. NOHIMS will provide detailed environmental health record keeping and major analysis capabilities at all major Navy industrial facilities and will greatly facilitate NAVOSH requirements to maintain safe and healthy work environments. Dr. Lang also noted that medical automation needs for the Fleet Marine Force were defined and a prototype Combat Casualty Care Information System was successfully tested. In addition, requirements and specifications were provided for a Shipboard Automated Medical System. Finally, Dr. Lang pointed to the unique medical data resources (medical history and service history files for the entire Navy and Marine Corps since 1965) created and maintained by the Center which make possible epidemiological analysis of disease and injury risks for any segment of the active duty population. These files made it possible to establish an HIV Central Registry for the Navy and Marine Corps at the Center and to study HIV seropositivity throughout the population.

Many other achievements of the Center's staff come to mind as I reflected on the history of our research endeavors over 30 years. These include:

- Pre-enlistment characteristics of recruits were used to predict four-year effectiveness in the Navy and Marine Corps, resulting in the development of the Odds-for-Effectiveness Tables.
- The studies of adaptation by remote groups to wintering-over in the Antarctic indicated individual adaptation to be related to emotional stability, task motivation, and social compatibility.
- The sleep laboratory at NHRC, the main Department of Defense laboratory for sleep studies, has studied the effects of sleep loss and abnormal cycles of work and rest on performance and physiological and psychological variables.
- The prediction of illness in different naval populations by the assessment of recent life changes has advanced the research in this area.
- The work completed on the returned prisoners of war has been important in evaluating the comprehensive medical histories of these men and the adjustment of wives and children to prolonged separation.
- Rapid methods for identifying microbial agents associated with infectious diseases were developed and tested in the field.
- Physiological parameters for Navy-wide physical readiness and the importance of physical fitness in health and performance were determined and methods for maintaining fitness were developed.
- Investigations of life style factors impacting Navy-Marine Corps readiness, i.e., obesity, hypertension, smoking, and drug use were conducted and the relationship of life style to physical fitness and health and the efficacy of smoking cessation interventions were evaluated.
- Design and development of a comprehensive occupational health information management system was completed and installed at naval shipyards.
- Analyses and corrective actions for Independent Duty Corpsmen attrition at sea were implemented
- An HIV testing data repository for Navy/Marine Corps was established and an interactive remote data entry system was instituted at MEDCOM and four major naval hospitals.
- Physiological and psychological indicators of performance degradation in sustained operations were identified and the physiological effects of heavy work load, protective clothing including mask, and sleep loss were measured.
- Prevention and rehabilitation of training related injuries was studied in Underwater Demolition Training and recruit training

- The effects of sleep loss and the efficacy of sleep aids were evaluated, and studies of caffeine effects and prophylactic napping were concluded.
- Performance enhancement of special warfare personnel, i.e., SEALS and underwater demolition teams, was accomplished.
- Cognitive psychological breakthroughs in attention and vigilance of sonar/radar operators under stress were realized.
- A satellite cold weather performance laboratory was established at the Marine Corps Mountain Warfare Training Center (Pickle Meadows), Bridgeport, California.
- Risks of cancer, accidental injury, and various infectious diseases were determined in a number of naval populations, and the health care needs of women aboard ship were evaluated.
- Low Level White Lighting has been installed aboard a number of surface ships as well as submarines.
- The effects of multiple stressors on performance and the development of combat simulation models has been addressed.
- A system for management of injury claims and rehabilitation processes was tested aboard National Ocean Service ships with the collaboration of the U.S. Public Health Service.

The Center has published more than 1,270 technical reports of which 800 have been published in scientific and medial journals or as chapters in books or proceedings. A number of major contributions to the scientific literature are listed in Appendix D.

The research program at NHRC in the 1990s promises to be as vigorous and fleet relevant as previous efforts.

Eric Gunderson

Appendix A.

Present Civilian and Military Personnel (as of 1 June 1989)

PRESENT PERSONNEL

CAPT Robert D. Chaney, MC, USN (7/87)
Commanding Officer

CDR Larry M. Dean, MSC, USN (6/85)
Executive Officer

E. K. Eric Gunderson, Ph.D. (60)
Chief Scientist

CIVILIAN PERSONNEL

<u>Name/Title (ROB)</u>		<u>Name/Title (ROB)</u>	
Mary E. Aldous Library, Librarian	(12/78)	Patricia A. Coben Psychology Technician	(10/70)
Jane R. Banks Civilian Personnel Assistant	(12/84)	Susan W. Conway Computer Program Analyst	(5/84)
Marcie B. Beckett Research Physiologist	(3/84)	Terry L. Conway Research Psychologist	(1/75)
Mike Beeler (Temp) Psychology Technician	(1/89)	Joleen Correia Clerk-Typist	(2/88)
James E. Bennett Financial Administrator	(3/69)	Betty Croft Library Technician	(2/84)
Sonya Bethea (Temp) Computer Operator	(8/87)	Brenda M. Crooks Secretary (Steno)	(7/66)
Christopher G. Blood Research Psychologist	(7/81)	Barbara DuBois, Ph.D. NRC Postdoc	(11/87)
Richard F. Booth Computer Programmer Analyst	(9/82)	Ali Elansary Computer Systems Programmer	(9/88)
Danny Braun (Temp) Psychology Technician	(1/89)	Carl E. Englund, Ph.D. Research Psychologist	(1/77)
Ralph G. Burr Statistician (General)	(11/82)	Prima S. Fontanares Computer Clerk	(10/83)
Antoinette Burkhardt VA Hire	(6/88)	Ralph D. Garcia Motor Vehicle Operator	(3/77)
Viola C. Castelli Editorial Assistant (Typing)	(12/84)	Frank C. Garland, Ph.D. Supv Statistician	(2/82)
Dwayne A. Castleberry Computer Programmer Analyst	(7/66)	Antonio Gino, Ph.D. Research Psychologist	(10/88)

Harold W. Goforth, Jr. Ph.D. Research Physiologist	(7/86)	Richard T. Loving, R.N. (VA/DOD hire)	(6/88)
Steven A. Gomez Research Psychologist	(6/85)	Tamsin L. Kelly, M.D. Medical Doctor	(5/86)
Jerry D. Goodman, Ph.D. Statistician (General)	(11/85)	Christopher N. Leake Research Psychologist	(8/87)
Edward D. Gorham Statistician (Health)	(10/84)	Hoa L. Ly Computer Programmer	(8/88)
Elizabeth Harper (Temp) Research Physiologist	(7/87)	Michael S. McNally Computer Programmer	(8/73)
Jay Heaney Research Physiologist	(11/88)	Scott Makeig, Ph.D. Research Psychologist	(1/89)
Gloria Held Editorial Assistant (Typing)	(6/87)	Larry T. Matteson (Temp) VA Hire	(6/88)
Lawrence A. Hermansen Computer Systems Analyst	(10/73)	Lex Merrill (Temp) Research Psychologist	(1/89)
Linda K. Hervig Research Psychologist	(9/71)	Milan R. Miller Computer Specialist	(7/67)
Raymond P. Hilbert Supv Computer Specialist	(8/69)	Neal Morrison EEG Technician	(1/89)
Susan M. Hilton Research Psychologist	(4/84)	Paul Naitoh, Ph.D. Supv Research Psychologist Department Head (50)	(7/67)
James A. Hodgdon, Ph.D. Supv Research Physiologist Department Head (10)	(3/80)	D. Stephen Nice, Ph.D. Supv Research Psychologist Department Head (40)	(7/76)
Anne L. Hoiberg Research Psychologist	(2/67)	Corazon B. Nirona Statistician	(1/89)
Stephen R. Howard (Temp) Research Psychologist	(1/89)	Lawrence A. Palinkas, Ph.D. Research Psychologist	(6/84)
Donald A. Irwin Electronics Technician	(11/70)	Eduardo M. Pamintuan Jr. (Temp) Computer Clerk	(2/89)
Lorene Irwin EEG Technician	(9/78)	Dianna M. Pearsall Computer Systems Programmer	(7/84)
Frances R. Jackson Editorial Assistant (Typing)	(5/72)	William M. Pugh Supv Research Psychologist Department Head (20)	(2/69)
M. Joyce Johnson Editorial Assistant (Typing)	(3/86)		

Marilyn Reddeg Editorial Assistant (Typing)	(7/88)	Joyce Toohey Financial Administrative Analyst	(3/89)
Donald Ross (Temp) Computer Clerk	(2/89)	Linda J. (Dutton) Trent Research Psychologist	(8/78)
David H. Ryman Research Psychologist	(2/69)	Ross R. Vickers Jr., Ph.D. Research Psychologist	(1/77)
Eddie Shaw Statistician (General)	(7/87)	Linda Wetteland Editorial Assistant (Typing)	(8/88)
Matthew Sinclair EEG Technician	(12/75)	Jack White (Temp) Research Psychologist	(1/89)
Suzanne C. Sinnott (Temp) Psychology Technician	(1/89)	Martin R. White Statistician (Health)	(4/84)
Neil Sjoholm (Temp) Research Physiologist	(11/88)	Walter W. Wilcox Research Psychologist	(5/85)
Anthony Sucec, Ph.D. (Temp) Research Physiologist	(1/86)	Rose D. Wright Student Aid	(5/89)
Frank A. Thompson Psychology Technician	(1/61)		

MILITARY PERSONNEL

<u>Name (ROB)</u>	<u>Officers</u>	<u>Position/Title</u>
CDR John G. Aronen, MC, USN	(11/86)	Medical Doctor
CDR Charles G. Gray, MC, USN	(7/81)	Physiologist
LCDR Craig Bischoff, MC, USN	(8/88)	Medical Doctor
LCDR Guy Banta, MSC, USN	(8/88)	Aerospace Physiologist
LCDR John T. Coyne, MSC, USN	(9/87)	Environmental Health Officer
LCDR Dennis L. Kelleher, MSC, USN	(9/87)	Research Physiologist
LT Charles V. Chesson, MSC, USNR	(12/86)	Research Psychologist
LT David A. Kobus, MSC, USN	(10/85)	Research Psychologist
LT Mark Riedy, MSC, USNR	(10/86)	Research Physiologist
LT Deborah A. Smith, MSC, USNR	(7/86)	Research Psychologist
LT Timothy P. Steele, MSC, USN	(9/86)	Research Psychologist
 <u>Enlisted</u>		
HMC Catharina C. Scott, USN	(4/88)	Command Chief Petty Officer
HM1 Alvin Almada, USN	(3/87)	General Duty
HM2 Brian W. Appleton, USN	(10/88)	General Duty
HM2 W. James Bethea, USN	(5/87)	General Duty
HM2 Kirk L. Buker, USN	(11/85)	General Duty
HM2 Gener B. Canimo, USN	(7/87)	General Duty
HM2 Tina M. Jenkins, USN	(12/86)	General Duty
HM2 Jordan M. Malbrough, USN	(10/86)	General Duty
HM2 Nancy A. Sampson, USN	(10/87)	General Duty
HM2 Princess M. Stover, USN	(5/87)	General Duty
HM3 Stephen R. Barlow, USN	(8/86)	General Duty
HM3 Elmer J. Labranch, USN	(10/88)	General Duty
HM3 Les Morosi, USN	(9/86)	EEG Technician

Appendix B.

Former Civilian and Military Personnel

(as of 1 June 1989)

FORMER CIVILIAN STAFF *

<u>Name</u>	<u>Reported Onboard</u>	<u>Title</u>
Adams, Nancy L.	86	Computer Systems Programmer
Argo, Margaret	84	Secretary (Typing)
Ash, Ruthie D.	81	Computer Aid
Attar, Leila	83	Health Systems Specialist
Austin, Marion T.	60	Electronics Technician (Ret./84)
Baker, Gregory D.	81	Research Psychologist
Ballinger, Simmone E.	86	Research Psychologist
Beaman, Doris S.	72	Psychology Technician
Beck, Arne L.	78	Psychologist
Beck, Donald	66	Computer Systems Analyst
Beck, Jean R.	68	Computer Programmer
Bellune, Julia J.	87	Research Psychologist
Benites, Robert K.	76	Computer Programmer
Bennett, Brad T.	79	Medical Machine Technician
Benson, Dorothy	75	CPWS/Social Service Assistant (Ret./82)
Berard, Steven P.	76	Psychologist
Bergess, Teresa	84	Computer Operator
Bess, Robert H.	75	Motor Vehicle Operator (Dec./81)
Bley, Susan M	77	Clerk
Bodie, Michael W.	66	
Bogner, Joseph B.	62	
Bone, Craig	85	Statistician (Health)
Bonnet, Dr. Michael H.	77	Research Psychologist
Borniger, Mathias Gary	67	EEG Technician
Bostic, Tamara L.	74	CPWS/Clerk-Typist
Bowen, George R.	68	
Boyd, Judith K.	66	
Brady, Donna	87	Computer Programmer
Bridge, Gerald L.	70	Administrative Assistant (Ret./82)

*Any omissions purely unintentional. (Ret.=Retired; Dec.=Deceased)

<u>Name</u>	<u>Reported Onboard</u>	<u>Title</u>
Brown, Kathy	86	
Browne, Penny K.	73	CPWS/Clerk-Typist
Busby, Terry S. (Fitzgerald)	69	Secretary (Typing)
Butler, Mark C.	76	Psychology Technician
Butcher, Maria E.	68	Clerk-Dictating Machine Transcriber
Cabell, Marlene J.	73	CPWS/Clerk-Typist
Cadena, Harold	78	Psychology Technician
Carey, Josephine L.	59	Secretary (Steno)
Carlson, Lawrence E.	72	Motor Vehicle Operator
Carr, Robert L.	76	Motor Vehicle Operator
Cermak, Lane	79	Clerk-Typist
Chambers, Mary Lee		
Chappell, Christine	82	Clerk (Typing)
Chapple, Hope D.	79	Editorial Assistant (Typing)
Cheng, Lucile S.	72	Clerk-Typist
	74	CPWS/Medical Records Clerk
	79	Graphics (Ret./88)
Chodur, Cathy	68	
Church, Michael W.	78	
Clay, Ann A.	69	Editorial Assistant (Typing) (Ret./83)
Cohen, Richard Paul	73	Motor Vehicle Operator/Budget Analyst
Colcord, Christine	81	Statistician
Colldeweith, Jack H.	62	
Concepcion, Enrique T.	66	Motor Vehicle Operator
Congleton, Michael W., Dr.	86/87	Civilian Medical Officer
Cordova, Ray A.	68	
Corona, M. Kathy (Regan)	78	Library Aid
Cronan-Hillex, Terry, Dr.	86	Research Psychologist
Cyphert, Enid	77	Clerk-Typist, Library Technician
Dahl, Barbara B.	74	CPWS/Research Psychologist
Deaton, John E.	76	CPWS/Psychology Technician
Dodd Jr., William D.	65	

<u>Name</u>	<u>Reported Onboard</u>	<u>Title</u>
Donnell, Beverly E.	78	Accounting Technician
Doyle, Kathleen	86	Library Aide
Dunning, Inez	72	CPWS/Social Worker
Earls, Mary Ann	87	Editorial Assistant (Typing)
Edwards, Earl A.	74	Microbiologist, Dept Head (Ret./84)
England, Barbara E.	66	
Enrique, Eleanor	85	Clerk-Typist
Erickson, Jeanne M.	66	Psychology Technician
Ernst, John A.	78	Psychologist
Esparza, Rosa	84	Secretary (Typing)
Feaster, Anthony J.	85	Computer Programmer
Ferns, Jay A.	85	Statistician (Health)
Fichman, J. Susie	72	Psychology Technician
Fink, Rod M.	72	Psychology Technician
Ford, Joyce M.	74	Computer Aid
Ford, Kenneth A.	62	
Freeman, F. Ron	66	Motor Vehicle Operator
Frogue, Jack E.	83	Statistician (General)
Gallagher, Cynthia F.	68	Clerk-Typist, Fiscal
Gardner, Randall N.	65	
Genhart, Michael	85	Research Psychologist
Giantvalley, Earl A.	62	
Goffman, Jerry M.	64	Personnel Research Psychologist
Gordon, Sharon	74	Psychology Technician
Gorney, Michael	81	Statistician
Greenwood, D. Joyce (Stokes)	86	Secretary (Typing)
Grumet, Harriet B.	69	Clerk-Typist
Haight, Michael A.	79	Psychology Technician
Hamlin, Jack Bradley	77	Psychology Technician
Hardy, Judith A.	71	Clerk-Typist

<u>Name</u>	<u>Reported Onboard</u>	<u>Title</u>
Harris, James E.	69	Administrative Assistant
Harvey, Russell A.	76	Psychologist
Heck, Gloria	79	Clerk-Typist
Heckman, Norma A.	74	Psychologist
Heinz, Cynthia L.	68	
Henrick, Timothy, Dr.	88	Research Physiologist
Herrman, Gerard T.	74	CPWS/Social Service Assistant
Hitchcock, William O.	79	Library Technician
Hodgins, Dallas R.	85	Computer Systems Progammer
Holbrook, Troy L., Dr.	85	Statistician
Hoopes, Edward A.	83	Statistician
Hord, David J., Dr.	69	Research Psychologist (Ret./88)
Horton, Orlo L.	77	Motor Vehicle Operator
Howard, Laurence P.	85	Computer Clerk
Hrountas, Stacy	83	Health Systems Specialist
Hunter, Edna J., Dr.	76	Clinical Psychologist
Hynds, Marina C	75	CPWS/Social Worker
Irby, Annetta N.	64	Computer Clerk
Iorio, Virginia A.	70	Psychology Technician
James, Lawrence R., Dr.	72	Personnel Research Psychologist
Jarrett, Louise M.	75	Editorial Assistant (Typing) (Ret./85) (Dec./86)
Jewell, Richard	69	(Long Beach ?)
John, Christopher T.	84	Computer Programmer
Johnson, James I.	78	Motor Vehicle Operator
Johnson, Laverne C., Dr.	62	Dept Head, Chief Scientist (Ret./86)
Jones, Allen P., Dr.	76	Supervisory Research Psychologist
Kalichman, Michael	81	NRC Postdoc
Kapfer Jr., Edgar L.	64	
Karpen, Wayne K.	64	
Kart, Patricia F.	74	Secretary (Steno)
Kealy, Schelly (Armstrong)	67	Computer Aid

<u>Name</u>	<u>Reported Onboard</u>	<u>Title</u>
Keith, Barbara G.	67	Clerk-Steno
Kilbourne, Brock, Dr.	87	NRC Postdoc
Knapp, Robert R.	62	
Knight, Rebecca	83	Clerk-Typist
Koch, Richard B.	76	Biology Lab Techician
Kolb, Douglas	71	Research Psychologist
Landreth, Sharon	68	Clerk-Typist
Larson, Gerald F.	71	Motor Vehicle Operator
Lautern, Mark	85	Computer Programmer
Lester, Gary R.	74	CPWS/Psychologist
Lopez, Berlinda A.	82	Personnel Assistant
Lubin, Ardie, Dr.	64	Research Psychologist (Dec./76)
Lucas, Marcia J.	84	Editorial Assistant (Typing)
Lynch, Gloria M.	75	Clerk-Typist
Lynch, Joan D.	62	
McClure, A. Louise	62	Clerk-Steno
McDonald, Barbara A.	78	CPWS/Research Psychologist
McDonald, Blair W. Dr.	71	Personnel Research Psychologist
McDonald, David G., Dr.	62 85/86 87/88	Research Psychologist Sabbatical ASEE Fellow
McMillan, Charmion P.	81	Biology Lab Technical
McQueeney, John A.	62	Psychologist
Mahan, Jack L.	65	
Manalo, Carole J.	72	Budget Analyst
Markey, Vicki K.	67	
Marsden, Martha A.	76	CPWS/Social Service Assistant
Martin, Michael	66	
Martinez, Jovita S.	84	Computer Clerk
Mavis Jr., James D.	67	

<u>Name</u>	<u>Reported Onboard</u>	<u>Title</u>
Medrano, Kathryn E. (Banks)	86	Editorial Assistant (Typing)
Mercardante, Frank P.	71	Budget Analyst (Dec.74)
Metres Jr., Philip J., Dr.	71	CPWS/Research Psychologist
Miner, Peggy	84	Editorial Assistant (Typing)
Miranda, Carmen	84	Clerk-Typist
Moffatt, Janice L.	79	
Monaco, Emily	66	Clerk-Typist
Montague, Peggy E. (Schwartz)	76	Editorial Assistant (Typing)
Moore, Mary	76	CPWS/Clerk-Typist
Morgan, Phyllis M.	65	
Moseley, Victoria M.	81	Computer Aid
Moses, Julie (Donnell)	68	Psychology Technician
Mowery, Elaine C.	74	CPWS/Intelligence Assistant
Mullaney, Daniel J.	74	Research Psychologist
Murphy, Lester E.	68	Psychology Technician (Ret./80)
Muzet, Alain, Dr.	72	Visiting Professor from France
Nadolski, Arlene M.	86	EEG Technician
Nelson, Peggy	81	Supply Clerk
Norman, Mary J. (Baldwin)	64	Fiscal Clerk
Norton, Bernice L. (waites)	66	Editorial Assistant (Typing) (Ret./84)
Nyte, Cyril H.	65	Computer Specialist
Offutt, Stephen V.	73	CPWS/Research Psychologist
Oien, Nancy E.	69	
Omstead, Dianne	62	
O'Neal, Maxine M.	62	
Orwick, James M.	63	
Oestreich, Linda L.	70	Clerk (Fiscal)
Paczowski, Rena A.	81	Computer Aid
Palermo, Daniel C.	78	CPWS/Psychology Technician
Parsons, Berenice E.	62	Editorial Assistant (Typing)

<u>Name</u>	<u>Reported Onboard</u>	<u>Title</u>
Paschal, Jacquelyn M.	78	CPWS/Clerk-Typist
Pastor, Trinidad H.	83	Editorial Assistant (Typing)
Paul, Mary	68	Computer Programmer (Ret./84) (Jul./88)
Pepper, Sharee, Dr.	82	NRC Postdoc
Pettit, Frances R.	64	
Phelan, James D.	66	Research Psychologist
Phillips, Irving A.	80	Biology Lab Technician (Microbiology)
Pierce, Evelyn A.	73	Card Punch Operator
Plag, John A., Dr.	59	Dept Head/Psychologist (Ret./78)
Polak, Patricia E.	63	Editorial Assistant (Typing) (Ret./84)
Poulos, Cheryl K.	77	Clerk-Steno
Pugsley, M. Lynne	74	CPWS/Clerk-Steno
Rader, Pamela D.	74	Clerk-Typist
Rahilly, Daniel J.	77	CPWS/Computer Programmer
Ramras, Susan	84	
Rathwohl, Eugene J.		
Reeves, Douglas	76	Psychologist
Richlin, Milton, Dr.	74	CPWS/Research Psychologist
Rigby, Marilyn K., Dr.	?	
Robertson, Marilyn L.	76	CPWS/Psychologist
Robinson, Dana S.	78	CPWS/Psychology Technician
Rogers, Ollie U	69	
Rosa, Juanita "Jenny"	85	Secretary (Typing)
Rossiter, Valarie S.	76	Psychologist
Ruff, Patricia R.	78	Editorial Clerk (Typing)
Russell, Jon	72	Psychology Technician
Rutherford, Ann M.	79	Secretary (Typing)
Santos, Mervyn I.	86	Computer Programmer
Schluk, Pat	67	
Schuette, Dorothy	62	
Schwartz, Edward M.	75	Mail Clerk
Sepulveda, Jose, Dr.	88	Summer, ASEE Fellow

<u>Name</u>	<u>Reported Onboard</u>	<u>Title</u>
Seymour, George	69	Psychology Technician
	83	Research Psychologist
Shears, Loyda A., Dr.	62	
Sholder, Theresa	75	Library Aid
Sikes, Linda L.	86	Editorial Assistant (Typing)
Sisk, Beatrice	85	Clerk-Typist
Slye, Elaine S.	64	
Sokoloff, Roger L.	71	Chemist
Sperrazzo, Gerald, Dr.	67	
Spinweber, Cheryl L. Dr.	78	Supv Research Psychologist
Stevenson, Sandra	83	Secretary (Typing)
Suiter, William C.	77	Microbiologist
Sunderman, Stu A.	70	Computer Programmer
Swayze, Edward R.	75	Motor Vehicle Operator
Swett, Dorothy E.	59	Switch Board Operator/Librarian (Ret./78)
Taylor, Larry G.	74	Motor Vehicle Operator
Tharp Jr., Van K., Dr.	76	Psychologist
Thomas, Robert S.	67	
Tompkins, Thomas C.	62	
Townsend, Richard E., Dr.	67	Personnel Research Psychologist
Trent, Robert P.		Psychologist
Van Kirk Kathryn V.	63	
Voigt, Christine E.	66	
Vallacher, Robin	71	Psychology Technician
Wasser Jr., Nathaniel C.	72	Motor Vehicle Operator
Watson, Barbara		Card Punch Operator
Webster, Evelyn	73	Psychologist
Wehmeyer, Carl C.	66	Motor Vehicle Operator (Dec.)
West, Lois	69	Editorial Assistant (Typing)/CPWS (Ret./80)

<u>Name</u>	<u>Reported Onboard</u>	<u>Title</u>
Wiley, Donald J.	74	Psychologist
Wilkins, Walter L., Dr.	59	Scientific Director (Ret./77)
Williams, Charles H.	65	
Wolff, Sandy	86	Clerk-Typist
Wozniak, Robert F.	66	
Wright, Billie J.	83	Computer Clerk
Wright, William K.	64	Administrative Officer (Ret./79) (Jul./87)
Yeager, John	84	Medical Machine Technician
Yelenosky, Patricia A.	82	Chemist
Yeomans, Edwards M.	67	

FORMER MILITARY PERSONNEL *

<u>Name</u>	<u>Rank</u>	<u>ROB</u>
Abroguena, Manuel G.	HM1	81
Anderson, Gary L.	HM1	84
Armstrong Jr., C. Glenn	LCDR MSC USN	87
Arthur, Ransom J.	CDR MC USN	63 (Ret./74)
Ask, Thomas L.	SA	64
Bailey, Larry W.	LCDR MSC USNR	77
Ballard, Phillip A.	LCDR MC USNR	71 (Ret./73)
Barr, Arland Lee	HM3	86
Bateman, William T.	HN	65
Bechtel, David R.	PNC	77
Beck, Gail F.	HM3	81
Bell, Peter R.	HM3	85
Berg III, Samuel W.	LT MC USN	72
Berghage, Thomas E.	CDR MSC USN	79
Berry, Newell H.	CDR MSC USN	62 (Ret.)
Biersner, Robert J.	LT MSC USNR	70
Blakemore, Eddie	HM2	69
Boyd, Roberta M. (Skarban)	HM2	79
Bryant, Carlos	HM3	80
Bucci, James, Jr.	HM3	82
Bucky, Steven F.	LT MSC USNR	72
Burrin, James A.	HM3	63
Burkard, Joseph F.	HM2	83
Butler, Mark C.	LT MSC USNR	76
Camanyag, Napoleon J.	HN	76
Cammack III, Benjamin F.	HM1	75
Carpitcher, Freda D.	HM2	80
Carter, James	MA2	63

*Any omissions purely unintentional. (Ret.=Retired; Dec.=Deceased)

<u>Name</u>	<u>Rank</u>	<u>ROB</u>
Caton, William F.	HM2	71 (Ret.)
Cavanaciol, Richard E.	HM2	80
Chacon, Jesus R.	HN	74
Chaffee, R. Blake	LT MSC USNR	79
Clarke, Robert D.	HM1	67
Clum, George A.	LTJG MSC USNR	67
Coil, E. Fisher	CAPT MC USN	75 (Ret./77)
Congleton, Michael W.	LCDR MC USN	83
Cothran, Lloyd G.	HM2	62
Crisman, Ronald P.	LT MSC USNR	83
Crisostomo, Andre	HM2	78
Cunningham, Lowell K.	CDR MC USN	59
Curtin, B. Gregory	HN	79
Custer, Neal A	HM2	76
Czazasty Jr., John A.	HMC	79 (Ret./80)
Davidoff, Robert	LT USN	62
Davis, Earl W.	HM1 USNFR	66 (Ret./72)
Dean, Larry M.	LTJG MSC USNR	73
Dean, Thomas Fuller	HN	67
Diem, Charles R.	CAPT DC USN/CPWS	72
Di Leo, Vincent G.	HN	73
Dixon, Cynthia J.	HM3	80
Doll, Richard E.	LT MSC USN	68
Donohue, A. Robert	LCDR MSC USN	85
Duea, Michael G.	HM3	62 (Ret./78)
Duff, Donald F.	LCDR MC USN	68
Edwards, Darrell	LT MSC USNR	70
Esteban, Antonio M.	HMC	70
Eveland, Robert J.	HMC	82
Ferguson, John C.	LCDR MSC USN	78
Ferris, William A.	CDR MSC USN	79

<u>Name</u>	<u>Rank</u>	<u>ROB</u>
Fornes, Michael F.	CAPT MC USN	84
Fritz, Charles W.	HMCA	64
Frye, Edward C.	HM3	87
Geiser, Anthony R.	HM3	76
Gillet, James R.	HN	81
Gillet, Nancy	HN	81
Glogower, Frederic D.	LCDR MSC USN	83
Gray, Charles G.	CDR MC USN	81
Greene, Korey L.	HN	72
Greenwood, Mark K.	HN	85
Hall, David A.	LCDR MC USN	77
Hammersburg, Donald D.	HM3	76
Hammond, Thomas J.	LTJG MSC USNR	75
Healy, John	HM3	81
Handeland, Donald K.	HM1	63 (Ret./70)
Hardacre, Lawrence W.	LTJG	63
Harris, Frederick L.	HM3	85
Hasley, Charles S.	HN	64
Hatt, Richard N.	HM1	77
Helmkamp, James C.	LCDR MSC USN	83
Henney, Robert M.	HM1	81
Hern, Evan L.	SN	64
Herndon, Charles L.	HM1	69
Hiett, Jennifer	HM1	84
Hilfiker, Sherman E.	HM2	78
Hilderbrand, Richard L.	LT MSC USNR	74
Hilton, Thomas F.	LT MSC USNR	82
Hirst, Ronald L.	SA	65
Hodgdon, James A.	LT MSC USNR	75
Holman, Williams G.	SA	64
House, John F.	LCDR MSC USN	72
Howell, Gary R.	HM3	72

<u>Name</u>	<u>Rank</u>	<u>ROB</u>
Huffman, William G.	HN	64
Hughes, Patrick J.	ENS R	65
Hutchins, Charles W. Jr.	LCDR MSC	75
Inman, Elmer (Buzz) E.	LCDR	64 (Ret.72)
Irvine, Jerry G.	HM2	59
Jackson, John L.	HM1	74 (Ret.)
Jackson, Larry M.	HMC	85
Janey, Virginia L.	SA	65
John, David A.	CDR MC R	76
Johnson, Rebecca J.	HM3	81
Jones, A. K.	HM2	69
Jones III, Kenneth P.	CDR MC	62 (Dec.)
Jones, Samuel	SA	65
Jones, Victor H.	CW0-W2	63
Jordan, Betty L.	HMC	74 (Ret./74)
Jurgensen, Jane M.	HM2	75
Kahl, David S.	HN	76
Kauers, Kevin L.	HM3	84
Keefe, Barry F.	LT MSC R	68
Kelley, George	HM1	84
Khan, Ike	HM1	81
Khoury, Kahleen A.	HN	83
Kilpatrick, Michael E.	CDR MC	81
Kimball, Michael W.	ENS	64
Kindsman, Arthur J.	HM3	68
Kleweo, Peter J.	HM3	69
Koch, Richard B.	HM2	74
Kulda, John M.	LT	62
Lagazon, Nilda P.	HM2	83
Lang, J. Eugene	CAPT MC	77

<u>Name</u>	<u>Rank</u>	<u>ROB</u>
LaRocco, James M.	LTJG MSC R	73
Lathrop, Albert L.	HM1	70
Lawlor, Michael R.	LT MSC R	83
Lawson, George T.	HN	80
Levine, John B.	LTJG MSC R	72
Lindberg, Clayton R.	HMC	74 (Ret./75)
Lock, Carl B.	HM2	66
Long, Michael T.	LT MC	66
Long, Sammie E.	MASN	64
Loomis, Timothy	LTJG/MSC USNR	9-25-97 Rsch Physiologist
Looney, John G.	LCDR MC R	74
Loos, Ernest J.	CDR MSC	83
Louis, Lamont	HM2	87
Luizzi, Don L.	HN	63
McCaughey, Brian G.	CDR MC	82
McCormic, Paul H.	HM2	83
McCormick, David E.	HM3	85
McCoy, Kenneth W.	HM1	86
McCubbin, Hamilton I.	CPT MSC USA/CPWS	72
McGuire, Frederick L.	LT MSC	59
McHugh, William B.	LT MC R	72
McMichael, Allen E.	LCDR MSC	59
McNally, Michael F.	HM1	63
Marcella, Michael C.	HM2	86
Marcinik, Edward J.	LTJG MSC R	79
Martindale, George A.	HM1	78
Mayfield, Alan G.	HM2	77
Maynard, Brenda L.	HM2	77
Milhouse Jr., Collins C.	HMC	81
Millbern, S. Michael	LCDR MC	77
Milne, Chad M.	HM2	72
Miner, Tracye L.	HM2	83
Minkler, B.	HM?	???

<u>Name</u>	<u>Rank</u>	<u>ROB</u>
Mueller II, Eric J.	LCDR MSC USN	81
Mullen, Michael J.	LTJG MSC USN	73
Mullis, Robert	HA	76
Nail, Richard L.	CDR MC USN	70
Nelson, Dennis P.	LCDR MSC USN	82
Nelson, Paul D.	LT MSC USN	60
Nelson, Robert J.	LT JAGC USNR/CPWS	74
Neuman, Tom S.	LCDR MC USN	77
Niver, Timothy E.	HM2	83
Norton, James P.	LT MSC USNR	85
Nyman, George A.	LT USN	62
O'Heir, James T.	HM1	59 (Ret./78)
Owen, James D.	HN	72
Parrish, Robert	HN	84
Pace III, Thomas T.	HM3	79
Peace, Vincent H.	HM3	75
Pedigo, Gary W.	HN	64
Peters, Barbara J.	HN	76
Pfeifer, Allen S.	MA2	64
Pishel, Robert G.	HM3	68
Pomeroy, Richard W.	HN	66
Pompey, Leonard L.	HM1	68 (Ret./75)
Pulse, George R.	HM2	63
Pyles, Gary E.	LCDR USNR-R/CPWS	74
Ptylowaney, Ronald M.	SA	66
Quiaot, Oswaldo V.	HM2	80
Rahe, Richard H.	LT MC USNR	65
Rameriz, Jose R.	HM3	87
Rankin, Dennis N.	MA3	64

<u>Name</u>	<u>Rank</u>	<u>ROB</u>
Reinhart, David T.	HM3	71
Reyles, Renato L.	HM1	80
Rice, Charles L.	LCDR MC USN	76
Richardson, James W.	LT MSC USN	64
Ross, John J.	LCDR USN	64
Rowland, Billy J.	SFC USA/CPWS	74
Ruark, Sylvan R.	LTC MC USA/CPWS	74
Rubel, Lawrence R.	ENS USN	64
Rubin, Robert T.	LCDR MC USNR	68
Saccani, Grace J.	HM3	79
Sanborn, Warren R.	CDR MSC USN	76
Sassin, Jon F.	LCDR MC USN	68
Saye, Clarence B.	LCDR MSC USN	72
Schieffer, Dennis R.	HM1	79
Schiffman, Paul G.	MA2	62 (Ret./69)
Schuchmann, Donald F.	SA	65
Schuckit, Marc A.	LCDR MC USNR	72
Schuster, William J.	HM1	77 (Ret./81)
Seales, David M.	LTJG MSC USNR	73
Shale, John H.	LCDR MC USNR	78
Sinclair, Matthew	HN	72
Sampson, Nancy A.	HM2 USN	87
Sinnott, Suzanne C.	HM3	84
Smith, Richard A.	LT MC USNR	69
Snider, Charles M.	HMC	66 (Ret./66)
Spatz, William H.	HM1	82
Spaulding, Raymond E.	CAPT MC USN	74
Stauffer, R. W.	HM1	74
Stewart Jr., Hosea	HM3	75
Struempler, Richard E.	LT MSC USNR	79
Suchor, Raymond J.	LT MC USN	71
Sullivan, Dennis A.	HM3	62

<u>Name</u>	<u>Rank</u>	<u>ROB</u>
Taylor, William V.	HN	76
Ten Eyck David R.	CAPT MC USN	74 (Ret./75)
Toledo, Emmanuel P	HN	77
Toney, Roosevelt E.	HM3	75
Tucker, Russher G.	HM2	69
Tuffli Jr., Charles F.	LT MC USNR	71
Van Vranken, Edwin	MAJ MSC USA/CPWS	76
Vaughn, K. R.	HM2	69
von Stuck, Murlowe L.	CDR MSC USN	85
Wallick, Marie T.	LTJG MSC USNR	79
Ward, Harold W.	LT MC USNR	74
Watkins, L. R.	HM2	??
Webb, Schuyler C.	LT MSC USNR	83
Weber, Sandra L.	HM3	82
Weiss, George W.	HMC	68 (Ret.)
Wellman, John	MAJ MC USAF/CPWS	73
Westfall, Jake	HM3	59
Wheeler, Ronald K.	HMCA	62 (Ret./78)
White, Daniel E.	LCDR MSC USN	81
Whitney, David W.	HM2	82
Wilson, John A.	HM1	68 (Ret./75)
Wilson, Raymond	SA	65
Wright, William K.	HMC	59 (Dec./87)
Wood, Charles J.	HM3	64
Wood, Duell E.	CDR MSC USN	81
Wynne, Terry Lee	HN	68
Yale, John A.	HN	71
Yonemoto, James T.	HM3	76
Yumol, Dante	HM3	77
Zir, Leonard M.	LT MC USNR	69

Appendix C.

Present and Former Students

(as of 1 June 1989)

FORMER STUDENTS *

Name	Reported Onboard Bldg Assigned	Name	Reported Onboard Bldg Assigned
Aved, Don	64	Douglass II, Arthur H.	74/331
Balazs, Louis L.	85/332	Drep, Jennifer	88/331
Ballinger, Simmone E.	85	Durazo, William	
Bartok, Angie	85		
Beaman, Doris S.	72/331	East, Louise S.	
Bergseid, Mark	72/331	Edens, Larry K.	64
Baker, Francoise D.	78/CPWS	Elliott, Elaine	
Barach, Ronald		Emery, Deidre A.	89/NH
Barber, Joseph H.	69/315	Espiritu, Michael	84/346
Beeler, Michael	87	Evans, Regina	84/315
Bekken, Marijke			
Bellenkes, Jessica	88	Falk, Patrick L.	68/315
Bellune, Julia J.	8?	Ferris, Nathan R.	
Benbow, Ronald W.		Fiedor, Regina M.	
Bennett, Linda K.	69/309	Fisher, Jesse B.	64
Bleicher, William	8?	Flaucher, Ronald B.	
Bley, Susan M. (Bungay)	68/309	Flood, Maria	87/315
Bloom, Faye	88	Folmer, Kerrie	89/315
Boutros, Zinia	8?	Freeman, Charles	87/NH
Boyd, Carolynn R.		Froning, Jeffrey N.	75/CPWS
Braden, Brent	86		
Brand, Dawn	8?	Galati, Todd	88/315
Braun, Danny	88/331	Garber, Beverly L.	73/309
Briggs, Pamela	84	Gardner, Sue C.	76/331
Brown, Liliane B.	74/CPWS	Ghio, William L.	66
Brown, Marianne	8?	Gooden, Nancy E.	
Brown, Tom	69	Gordon, Sharon	71/309
Bryson, Jane		Gorman, Bill	
Buck, Margaret A.		Gorney, Mike	82/346
Buffkin, Donald C.	70	Gould, Randy	
Bunkley, Thomas E.	68/331	Gram, Karen	85
Burrin, James A.		Gresham, Louise	85/332
Burkart, Toni	87	Griffith, John A.	66
Burton, Victor L.	64	Gross, Lisa	88/NTC
Butler, Mark C.	69/331	Grundstrom, Stephanie	70/315
		Gudat, Marvin L.	66
Caballero, Anita	69/315		
Capizzi, Marzia J.	79	Haithcote, Katrina	
Caputo, Tony J.	64	Hazlehurst, Brian	88/331
Carey, Karen T.		Hammond, Thomas J.	72/331
Carver, Tom D.		Hanchett, Cathy	88/NTC
Castle, Linda A.	72/346	Hanson, Marie E.	73/346
Childers, Scott	88/331	Hatcher, David	89/331
Chodur, Catherine M.		Hawkins, Allison	84/331
Cicalo, Nancy L.	72/346	Hayden, Nessen D.	
Clements, Merle S.	66	Hayes, Vicki E.	72/331
Cole, Laura	88	Heaney, Jay	87/NTC
Coleman, John D.		Hearne, Jean	88/346
Collier, Carole A.		Heller, Anthony F.	66/309
Conway, Terry L.	72/331	Hentschel, Kathy J.	71/306
Coultas, Mark		Hereford, Jeffrey E.	64
Daly, Brendon	8?	Herman, Gerald	72/306
Davidson, Dee Ann	72/309	Hermansen, Larry	72/309
De Angelo, Gail	69/309	Hilbert, Raymond P.	68/315
Dellinger, Barry	88	Hofer, Scott	88/315
DeMoor, Carl	8?	Hoiberg, Ann L.	66/309
Deaton, John	72/347	Holt, Sue	87/346
		Hue, Phuong	87/331
		Hyslop, Susan C.	68/309

*Any omissions purely unintentional.

Name	Reported Onboard Bldg Assigned	Name	Reported Onboard Bldg Assigned
Inzer, Kerry	80/306	Ngo, Anh	88/332
Inlow, Mark	8?/	Nguyen, Son Thruong	87/331
Isaacson, Terry L.		Nguyen, Tho Hyu	87/331
Ishikawa, Michael	65	Nickason, Kathleen	71/306
Jensen, Phyllis	66	Nirona, Corazon	88/331
Jensma, Bill W.	72/315	Norman, Stephany	87/332
Jurisch, J/Ressie H.		Norton, Richard S.	
Kelleher, Katherine		Oleno, Timothy A.	66
Kelley, Jan	86/332	Offutt, Stephen V.	73/346
Kelly, Martha J.		Paul, Mary	66/309
Krane, Cathy	70	Palen, Leysia	88/315
Kroll, Teresa	8?/NTC	Parker, John	73/331
Kulcyzk, Christopher	64	Pasqual, Sandra	65
Knippa, John		Patrick, Kathleen	68
Larmer, J. E.		Pepper, Ross E.	64
Larson, Chandra	89/346	Perkins, Yosmin	87/331
Lee, Carleen M.		Peterson, Keith	8?/NTC
Leslie, Jack K.	66	Peterson, M.	
Leslie, Laura		Pipkin, Bon E.	88/332
Lester, Gary R.	69/331	Pinedo, Tony	85/332
Lofgren, Nancy A.	68/309	Plamondon, Diane	68/306
Lombardo, Cecilia Y.	70/309	Poast, Jean	87/331
Lopez, Santos Frank	73/309	Priore, Lisa	87/331
Lord, Carol	8?/NH	Protti, Ann-Marine	8?/NTC
Love, Deborah	8?/315	Pugh, William	68/331
Lutey, Jan A.	68/331		
LY, Hoa	87/331	Rankin, Gene P.	
McCarthy, Brian	8?/346	Regan, M. Kathy	70/306
McCutchens, William C.		Riba, Robert M.	72/331
McDonald, Catherine	8?/346	Robertson, Marilyn	75/346
McDermott, Kathleen P.	72/346	Roche, Paul	
McGranahan, M.		Roedel, Liz	88/NTC
McLean, Janice B.	73/306	Rose, Sharon	
McMillian, Tom		Ross, Beverly A.	73/346
Mallet, Harold W.		Ross, Kenneth L.	73/346
Mangel, J.	66	Russell, Molly	88/346
Marik, Sherri	88/331		
Mark, Linda	73/346	Sampson, Susan	73/331
Marriner, Harry	63	Sanchez, Christine C.	
Meissner, Diane	8?/331	Saner, Kathleen	70/331
Merrill, Lex	8?/315	Schertzer, Bernard	64
Miller, Ellen M.	69/Hosp	Scarvie, William	88/331
Million, Carol B.	72/346	Schick, Juliette J.	
Mitchell, Linda S.		Schlactus, David L.	
Montgomery, Charles J.	72/331	Schleen, Pat	67
Morrison, Neal	88/NH	Schock, Christine	88/331
Morse, Barbara J.		Schmidt, Erin N.	64
Mott, Mariam	8?/346	Schoepflin, William R.	72/315
Mrozek, Donald M.	69	Scoggin, Kevin M.	7?
Mubaraki, Monica	8?/	Scott, Patti	88/331
Mulvey, Margaret W.		Selman, Patricia A.	70/331
Nanquil, Caesar G.	86/331	Selten, R.	64
Nelson, Johanna	73/346	Seymour, George	67
Nerison, Rebecca	86/346	Seymour, Janet	67
Newman, Katherine S.	76	Sevlian, Marcy	88/331
		Sharp, Emerson L.	64
		Shelton, Charlotte C.	65
		Sheil, Jane	88/346
		Shoulder, Teresa M.	71/306

<u>Name</u>	<u>Reported Onboard</u> <u>Bldg Assigned</u>
Shreve, Nancy	72/346
Silverman, Gina	86/332
Sklov, Monny C.	74/332
Snow, Marilyn	
Spreng, Lawrence F.	65
Starr, Mark L.	
Stashower, Keren	8?
Stepnowsky, Mary A.	
Stern, Marty J.	8?
Sutherland, Beverly	88/331
Thomas, Cheri	
Thomas, Virginia R.	
Tianela, Robin J.	87/346
Timme, Deborah	70/331
To, Quynh Le	88/331
Tracy, Mary L.	71/315
Trinh, Tam	87/346
Trower, Dale Edward	64
Vallacher, Robin E.	69/331
Van Vliet, Chris	
Vaugh, Linda	69
Van Zant, Stephanie	
Wales, Jodie	89/315
Walter, David M.	
West, Dale	
Wilson, Mike	71/Hosp
Wilson, Jacqueline	
Wineman, John Henry	65
Wozniak, Robert F.	64
Wyborney, Vernon Grant	68/309
Yniguez, Deborah	88/315

Appendix D.
Selected Contributions to the Scientific Literature

Selected Contributions to the Scientific Literature*

Professional staff of the Center have contributed a large number of chapters to books and proceedings as well as a number of volumes to the scientific literature. Several areas in which the Center has made major contributions are as follows:

ANTARCTIC STUDIES

Nelson, PD (1963). Human adaptation to Antarctic station life. In Medicine and Public Health in the Arctic and Antarctic, Vol 169. Public Health Papers, No. 18. Geneva: World Health Organization.

Gunderson, EKE (1966). Small group structure and performance in extreme environments. In Psychological Aspects of Behavior in Small Groups, Symposium 37. Proceedings of the XVIII International Congress of Psychology, 4-11 Aug 66. Moscow, U.S.S.R.

Gunderson, EKE & Arthur, RJ (1966). Emotional health in extreme and normal environments. In Proceedings, 15th International Congress on Occupational Health, 19-24 Sep 66. Vienna, Austria.

Gunderson, EKE (1968). Interpersonal compatibility in restricted environments. In SB Sells (Ed.), Factors Affecting Team Performance in Isolated Environments. Fort Worth, TX: Texas Christian University, Institute of Behavioral Research.

Gunderson, EKE (1973). Psychological problems in polar environments. In JE Sater (Ed.), The Arctic Basin. Washington, DC: The Arctic Institute of North America.

Gunderson, EKE (1973). Individual behavior in confined or isolated groups. In JE Rasmussen (Ed.), Man in Isolation and Confinement. Chicago: Aldine Press.

Gunderson, EKE (Ed.), (1974). Human Adaptability to Antarctic Conditions, Vol. 1, Antarctic Research Series. Washington, DC: American Geophysical Union.

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Palinkas, LA (1988). The Human Element in Space: Lessons from Antarctica. In SW Johnson & JP Wetzel (Eds.), Engineering, Construction and Operations Space. New York: American Society of Civil Engineers. Proceedings of Space '88, 29-31 Aug 88, Albuquerque, New Mexico.

* A command bibliography is available upon request.

ALCOHOLISM

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Schuckit, MA & Cahalan, D (1976). Evaluation of alcoholism treatment programs. In WJ Filstead, JJ Rossi, & M Keller (Eds.), Alcohol, and Alcohol Problems. Cambridge, MA: Ballinger.

Schuckit, MA (1977). Alcohol Problems in the United States Armed Services. In Military Chaplains Review, Alcohol Abuse (Report No. PAM 165-112). Washington, DC: Headquarters, U.S. Army Department.

Seales, DM; Naitoh, P; Johnson, LC; & Schuckit, MA (1978). The somatosensory evoked potential as a measure of tolerance to ethanol. In DA Otto (Ed.), Multidisciplinary Perspectives in Event-related Brain Research. Hendersonville, NC.

Kolb, D & Gunderson, EKE (1985). Research on alcohol abuse and rehabilitation in the U.S. Navy. In MA Schuckit (Ed.), Alcohol Patterns and Problems. New Brunswick, NJ: Rutgers University Press.

ENVIRONMENTAL MEDICINE

Pugh, WM & Gunderson, EKE (1974). Effects of shipboard environmental conditions on health. Proceedings, International Shipboard Environmental Design Conference, Vol. 11. College Park, MD: University of Maryland, Center of Adult Education.

Gunderson, EKE & McDonald, BW (1974). Measurement of habitability. In EC Wortz & MR Gafvert (Eds.), Proceedings, 28th Annual Conference on Habitability, 4 Apr 74. Monterey, CA: California Council of American Institute of Architects.

Dean, LM; Pugh, WM; & Gunderson, EKE (1976). Spatial and perceptual components of crowding effects on health and satisfaction. In S Saegert (Ed.), Crowding in Real Environments, Vol 25. Beverly Hills & London: Sage Publications.

Gunderson, EKE (1974). Physical environments, habitability perceptions, and health. In BT King (Ed.), Men in Social Systems. Results of a Three-Year Multiorganization Study. Fort Worth, TX: Institute of Behavioral Research, Texas Christian University.

Gunderson, EKE (1976). Health and adjustment of men at sea. In NL Goldman & DR Segal (Eds.), The Social Psychology of Military Service. Beverly Hills & London: Sage Publications.

Gunderson, EKE (1978). Organizational and environmental influences on health and performance. In BT King, SS Streufert, & FE Fiedler (Eds.), Managerial Control and Organizational Democracy. Washington, DC: VH Winston & Sons.

Drexler, JA; Jones, AP; & Gunderson, EKE (Eds.), (1979). Problems and Strategies of Implementing Navy Occupational Health and Safety Programs. Seattle, WA: Battelle Human Affairs Research Center.

Gunderson, EKE (1984). Epidemiological uses of an occupational health information system. In W Van Eimeren, R Engelbrecht, & CD Flagle (Eds.), Third International Conference on System Science in Health Care. Berlin and Heidelberg, Germany: Springer-Verlag.

Pugh, WM (1985). Design concepts of the Operational Medicine Information System (OMIS). In T Walter (Ed.), Proceedings, 18th Hawaii International Conference on System Sciences, Vol. 3, Medical Information Processing. North Hollywood, CA: Western Periodicals.

SLEEP

Johnson, LC; Davidoff, RA; & Mann, SH (1962). Brain activity, seizure discharges, and behavior. In Proceedings, San Diego Symposium for Biomedical Engineering, Vol 2, 19-21 Jun 62. La Jolla, CA: SDSBE.

Johnson, LC (1967). Flicker as a helicopter pilot problem: Use of Photic Stimulation and EEG Screening Techniques. In PH Van Wulfften Palthe (Ed.), Electroencephalography in Aerospace Medicine. Paris: AGARDOgraph, 110.

Johnson, LC (1969). Psychological and physiological changes following total sleep deprivation. In A Kales (Ed.), Sleep: Physiology and Pathology. Philadelphia, PA: JB Lippincott Co.

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Johnson, LC; Naitoh, P; Lubin, A; & Moses, J (1972). Sleep stages and performance. In WP Colquhoun (Ed.), Aspects of Human Efficiency: Diurnal Rhythm and Sleep Loss. Cambridge: English Universities Press Ltd.

Naitoh, P (1975). Sleep deprivation in humans. In PH Venables & MJ Christie (Eds.), Research in Psychophysiology. New York: John Wiley & Sons.

Johnson, LC (1975). Sleep. Ibid.

Naitoh, P & Hilbert, RP (1976). CNV-heart rate response under gradual sleep reduction. In WC McCallum & JR Knott (Eds.), The Responsive Brain. Bristol: John Wiley & Sons, Ltd.

Johnson, LC 1977). Learned control of brain wave activity. In J Beatty & H Legewie (Eds.), Biofeedback and Behavior, Vol. 2. NATO Conference Series: III Human Factors. New York: Plenum Press.

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Johnson, LC (1977). Psychophysiological research: Aims and methods. In ZJ Lipowski, DR Lipsitt, & PC Whybrow (Eds.), Psychosomatic Medicine: Current Trends and Clinical Applications. New York: Oxford University Press.

Johnson, LC (1980). Recording and analysis of brain activity. In PH Venables and I Martin (Eds.), Techniques in Psychophysiology. Sussex: John Wiley & Sons, Ltd.

Gomez, SA; Spinweber, CL; & Johnson, LC (1988). Caffeine, benzodiazepines and memory loss. In M Chase, D McGinty, & C O'Connor (Eds.), Sleep Research, Vol. 17. Los Angeles, CA: UCLA Brain Research Institute.

Johnson, LC; Spinweber, CL; & Gomez, SA (1988). Caffeine, benzodiazepines, and daytime sleepiness. ibid.

Spinweber, CL; Johnson, LC; & Gomez, SA (1988). Caffeine, benzodiazepines, and daytime performance. ibid.

Bellune, JJ & Spinweber, CL (1988). Effects of a sleep hygiene course on sleep quality during SEAL Team training. ibid.

Spinweber, CL & Bellune, JJ (1988). Development of insomnia is associated with failureo in SEAL Team training. ibid.

Freeman, CR., Johnson, LC; Spinweber, CL; & Gomez, SA (1988). The relationship among four measures of sleepiness. ibid.

LIFE CHANGES AND HEALTH

Rahe, RH (1969). Life crisis and health change. In PRA May & JR Wittenborn (Eds.), Psychotropic Drug Response: Advances in Prediction. Springfield, IL: C. C. Thomas.

Rahe, RH (1972). Subjects' recent life changes and their near-future illness susceptibility. In ZJ Lipowski (Ed.), Advances in Psychosomatic Medicine, Vol. 8. Basel: S. Karger.

Rahe, RH (1978). Demographic and psychosocial characteristics of men in the United States Navy as predictors of those men who develop venereal disease. In L Levi (Ed.), Society, Stress, and Disease, Vol. 3. London: Oxford University Press.

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Gunderson, EKE & Rahe, RH (Eds.), (1974). Life Stress and Illness. Springfield, IL: CC Thomas.

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Gunderson, EKE & Plag, JA (1980). Long-term health patterns among naval personnel. In S Sells, R Crandall, M Roff, JA Strauss, & W Pollin (Eds.), Human Functioning in Longitudinal Perspective. Baltimore, MD: Williams & Wilkins.

PRISONERS OF WAR

Hunter, EJ (1975). The Prisoner of War: Coping with the stress of isolation. In RH Moos (Ed.), Human Adaptation: Coping with Life Crises. Lexington, MA: DC Heath & Co.

Hunter, EJ & DS Nice (Eds.), (1978). Children of Military Families: A Part and Yet Apart. Washington, DC: Superintendent of Documents, U.S. Government Printing Office.

Hunter, EJ & DS Nice (Eds.), (1978). Military Families: Adaptation to Change. New York: Praeger.

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Hunter, EJ (Ed.) (1978). Prolonged Separation: The Prisoner of War and His Family. San Diego: CPWS/Naval Health Research Center.

McCubbin, HI; Dahl, BB, Metres, P; Hunter, EJ; & Plag, JA (Eds.), (1975). Family Separation and Reunion. Families of Prisoners of War and Servicemen Missing in Action. Washington, DC: Superintendent of Documents, U.S. Government Printing Office.

McCubbin, HI; Dahl, BB; & Hunter, EJ (1975, Apr). Research on the military family: An assessment. In NL Goldman & DR Segal (Eds.), Proceedings, Research Conference on the Social Psychology in the Military Service. Chicago, IL: Inter-University Seminar on the Armed Forces & Society, University of Chicago.

McCubbin, HI; Dahl, BB; & Hunter, EJ (Eds.), (1976). Families in the Military System. Beverly Hills: Sage.

McCubbin, HI; Dahl, BB; Lester, GR; & Hammond, T (1976). Fathers at sea: Characteristics of Navy families vulnerable to the stresses of separation. In 5th Annual Symposium Psychology in the Air Force, April 1976. Colorado Springs: USAF Academy, Department of Behavior, Science and Leadership.

Metres, PJ; Plag, JA; Ross, KL; & Phelan, JD (1976). Psychological dysfunction in repatriated American Prisoners of War and its relationship to captivity and demographic variables. ibid.

Spaulding, RC (Ed.), (1976). Proceedings, 3rd Annual Joint Medical Meeting Concerning POW/MIA Matters, November 1975. San Diego: CPWS, Naval Health Research Center.

Nice, DS (1979). An overview of the Family Studies Program at the Center for Prisoner of War Studies. In HP Wetzler (Ed.), Proceedings, 5th Annual Joint Medical Meeting Concerning POW/MIA Matters. Brooks AFB, TX: Clinical Sciences Division, USAF School of Aerospace Medicine.

Rahe, RH (1979). Center History and Future Course for the Center for Prisoner of War Studies, San Diego, California. ibid.

Appendix E.
List of Awards
and
Letters of Congratulation

AWARDS

The following awards were presented:

NAVY ACHIEVEMENT AWARD AND PLAQUE

LT Timothy Steele, MSC, USN

NAVY SUPERIOR CIVILIAN SERVICE AWARD

E. K. Eric Gunderson, Ph.D.

NHRC LENGTH OF SERVICE PINS

James Bennett, 20 Years

William Pugh, 20 Years

FEDERAL LENGTH OF SERVICE AWARDS

10 Years: Linda Trent

20 Years: William Pugh

15 Years: Lawrence Hermansen

30 Years: Brenda Crooks

15 Years: Dr. Carl Englund

35 Years: Michael McNally

20 Years: Mary Aldous

PLANK OWNER'S CERTIFICATES

William "Jake" Westfall (HM3/USN)
Fort Worth, Texas

Dorothy Swett
San Diego, California

Frederick L. McGuire (LCDR/MSC/USN)
Irvine, California

Walter L. Wilkins, Ph.D.
San Diego, California

"THE HOUSE THAT WALT BUILT" CERTIFICATE (known as the Unit)*

Walter L. Wilkins, Ph.D.

DISTANCE AWARD CERTIFICATE

Paul D. Nelson, (CAPT/MSC/USN, Ret.), Rockville, Maryland

*See page 22, paragraph 3



**DEPARTMENT OF THE NAVY
NAVAL MEDICAL COMMAND
WASHINGTON, D.C. 20372-8120**

THE SECRETARY OF THE NAVY TAKES GREAT PRIDE IN PRESENTING THE
NAVY SUPERIOR CIVILIAN SERVICE AWARD

TO

E. K. E. GUNDERSON

For services as set forth in the following citation:

For extraordinary achievement in the Management of Medical Research and Scientific Programs for the Navy, especially those at the Naval Health Research Center. Dr. Gunderson's superb planning, knowledge and organizational leadership have contributed significantly to the success of numerous research programs throughout the past 29 years. As a function of his many sensitive efforts and long range planning the Naval Health Research Center is one of excellence!

A handwritten signature in black ink, appearing to read "R. James T. Sears".
R. JAMES T. SEARS





UNITED STATES SENATE
WASHINGTON, D. C. 20510

PETE WILSON
CALIFORNIA

June 9, 1989

TO THE NAVAL HEALTH RESEARCH CENTER
San Diego, California

I am pleased to extend my congratulations to the Naval Health Research Center on the occasion of its 30th Anniversary and to commend its invaluable and remarkably wide-ranging contributions to research and development.

The Center has been in the vanguard of innovative programs and systems to support our Naval and Marine Corps personnel, contributing immeasurably to their fighting capabilities and to their safety and well being in service to our country.

To the men and women who staff the Naval Health Research Center and are central to its high standing and achievements in the research and development community, I salute you with admiration. The talent and creativity you bring to your work and the superb results you produce have long supported the deployment of our civilian and military personnel around the world, from the Antarctic to the Persian Gulf.

I am proud that this major research facility is located in our state, not only because of the ready support it lends to our military populations, but because of the prestige it brings to all of California. As the Naval Health Research Center stands on the threshold of its next decade, I wish it a long and equally productive and distinguished future.

Sincerely,

PETE WILSON





THE CITY OF
SAN DIEGO

AMERICA'S FINEST CITY

MAUREEN O'CONNOR
MAYOR

C O N G R A T U L A T I O N S

T O T H E

NAVAL HEALTH RESEARCH CENTER

On behalf of the citizens of San Diego, I congratulate the Naval Health Research Center on its 30th anniversary. This is a very significant milestone and worthy of recognition.

San Diego has always enjoyed the special relationship it has with the military and takes great pride in having a research facility as prestigious as the Naval Health Research Center.

I extend my best wishes for continued progress in your next three decades and look forward to your ongoing commitment to the people of San Diego.

Sincerely,

Maureen O'Connor
Mayor

MOC/DAS:fdg

P-3.4



THE SURGEON GENERAL OF THE NAVY

8 June 1989

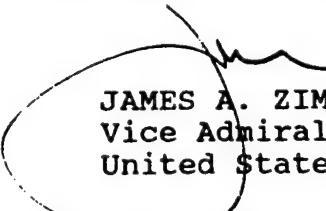

Dear Captain Chaney,

I am most pleased to forward a letter from James D. Felson, M.D., Medical Director, United States Public Health Service, offering his appreciation for the excellent cooperative working relationship between NHRC and USPHS.

Allow me to echo his sentiments and applaud you for your working relationship across the entire spectrum of military and civilian agencies.

Please pass on congratulations to the staff on the occasion of NHRC's 30th Anniversary and I wish you continued success.


Respectfully,


JAMES A. ZIMBLE
Vice Admiral, Medical Corps
United States Navy

CAPT Robert Chaney, MC, USN
Commanding Officer
Naval Health Research Center
P. O. Box 85122
San Diego, CA 92138

Enclosure



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Health Resources and
Services Administration
Rockville MD 20857

24 MAY 1989

James A. Zimble
Vice Admiral, MC, USN
Surgeon General of the Navy
Office of the Chief of Naval Operations
Department of the Navy
Washington, D.C.

Dear Vice Admiral Zimble:

On behalf of the Public Health Service Bureau of Health Care Delivery and Assistance Occupational and Beneficiary Medical Programs, I would like to take this occasion of the Naval Medical Research and Development Command Naval Health Research Center's 30th Anniversary Celebration to express our appreciation for the Center's efficacious research which is being accomplished in the arena of occupational medicine for civilian and military personnel of the maritime operational services of the U.S. government.

I would like to express special gratitude for the leadership of Captain Robert D. Chaney, MC, USN, as Commanding Officer and Dr. E. K. Gunderson as Chief Scientist of the Naval Health Research Center for their fostering a research setting which is not only highly productive but extremely sensitive to the needs of operational forces. We look forward to a continued mutually beneficial and productive working relationship between our research and development activities.

Sincerely,


James D. Felsen, M.D.
Medical Director
United States Public Health Service

JDF:gb



COMMANDER
NAVAL MEDICAL COMMAND
15 May 1989

Dear Bob,

How much I would like to join you in the celebration of the 30th Anniversary of the Naval Health Research Center. My memories of the Center go back nearly 25 of those 30 years. Names come quickly to mind - Walter Wilkens, Eric Gunderson, Ransom Arthur, Vern Johnson, Paul Nelson, Newell Berry, Steve Nice and so many others whom I have known and who have done so much for Navy Medicine.

It is sometimes said that the life span of a research institution is limited, but NHRC has been able to remain vital and productive. It also remains a producer of research that is of exceptionally high quality and of great relevance.

Thank you for your invitation. I deeply regret not being able to join you. Congratulations on your past accomplishments and best wishes for continued success.

Warmest regards,

[Handwritten signature of H. James T. Sears]
H. JAMES T. SEARS
Rear Admiral, Medical Corps
United States Navy

Captain R. D. Chaney, MC, USN
Commanding Officer
Naval Health Research Center
Post Office Box 85122
San Diego, California 92138-9174



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Health Resources and
Services Administration
Rockville MD 20857

25 May 1989

Robert D. Chaney
Captain, MC, USN
Naval Health Research Center
P.O. Box 85122
San Diego, CA 92138-9174

Dear Captain Chaney:

I would like to express the appreciation of Mrs. Bonifield and myself for your invitation to the 30th anniversary celebration of the Naval Health Research Center of the Naval Medical Research and Development Command. The United States Public Health Service Occupational and Beneficiary Health Service has been most fortunate to be engaged in joint research endeavors with your center over the past years. Specifically, the work of Drs. E.K. Gunderson and Steve Nice, as well as Mr. William Pugh and their colleagues, has been most valuable in our realization of the Public Health Service objectives of maintaining the occupational health status of civilian and uniformed service personnel in the maritime services of the U.S. government at the highest possible level.

On behalf of Dr. James Felsen, our Medical Director, and the entire staff of the Public Health Service Occupational and Beneficiary Health Service Program, we look forward to the continuation and further development of synergistic working relationships among our researchers.

Sincerely,

Thomas R. Bonifield, Ph.D.
Research Scientist

TRB:gb



THE COMMANDING OFFICER
NAVAL BIODYNAMICS LABORATORY
BOX 29407
NEW ORLEANS, LOUISIANA 70189-0407

19 May 1989

Captain Robert D. Chaney, MC, USN
Commanding Officer
Naval Health Research Center
P. O. Box 85122
San Diego, CA 92138-9174

Dear Captain Chaney:

I am sorry that I will be unable to attend the 30th anniversary celebration of the Naval Health Research Center. It should be an enjoyable day filled with pride.

All of us at the Naval Biodynamics Laboratory wish to congratulate your Command on your achievements during the past three decades and wish you the best of luck in the next thirty years!

Sincerely,

DOUGLAS W. CALL
Captain, Medical Service Corps
United States Navy
Commanding Officer

western union

western union

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FMS ERIC GUNDERSON, CARE NAVAL HEALTH, DLR
RESEARCH CENTER 30TH RPT DLY MGM, PLS DLR ASAP, DLR
EMBASSY SUITES HOTEL 601 PACIFIC HWY
SAN DIEGO CA

BT
HAVE A GOOD DAY. REGARDS TO CAPTAIN CHANEY, COMMANDER DEAN AND CHIEF
SCOTT. MY BEST ALSO TO CAPTAINS ARTHUR AND RAE. THINK OF THE FRIENDS
I'LL MISS EACH MINUTE. SORRY TO HAVE MISSED ALL OF YOU. CHEERS, HAL
CAPTAIN HAROLD WARD MC, USNR
614 MOANA DR
SAN DIEGO CA 92106

NNNN

1142 EST

* IPM91CA

western union

western union

Regrets with messages...

Dr. Norman Q. Brill (Los Angeles): "I regret my inability to attend. Congratulations and best wishes on this 30th anniversary celebration

RADM D. Earl Brown, Jr. (Reston, VA): "Thanks for the invitation."

VADM J. W. Cox (San Diego): "Sorry, we will be on vacation with out of town company for our 40th anniversary."

RADM R. E. Faucett (San Diego): "Sorry, unable to attend. Congratulations and best wishes!"

Igor Grant, M.D. (VA, San Diego): "Will Be out of town."

R. M. Hillyer (NOSC, San Diego): "Regrets, will be on TDY."

CAPT Bob McClendon, CO, RTC (San Diego) "Very sorry. Direct conflict with recruit graduation requirements on Friday. Thanks"

Ivan N. Mensh, Ph.D. (CAPT USNR-R) (Los Angeles): "Sorry, I must be at another meeting at that time."

CDR F. P. Paleologo, (OIC NAMRU-Two Det) "Sorry, Just returned from TAD in U.S. on 22 May 89. Best wishes for your celebration."

Former staff...

Robert J. Biersner (Ohio): "Many thanks for the invitation. Hope you have a memorable anniversary."

Dr. Mark Butler (San Diego): "I will be out of town on business. Rats!!"

CDR Fred Glogower (San Diego): "Would love to come but will be in Port Hueneme."

CDR & Mrs. R. L. Hilderbrand (Washington, DC): "Regretfully."

Anita Irby (Montana): "Would love to come but have a graduation to attend. Thank you for the invitation! Hello to all! Annetta"

Dr. Laverne C. Johnson (San Diego): "I regret I will be out of the country. Best wishes for a successful celebration. Dr. J"

Mr. & Mrs. Arthur Kinsman (Massachusetts): "Thank you for inviting us. Best wishes!"

Allen E. McMichael (Virginia Beach): "Regretfully".

Philip J. Metres Jr., Ph.D. (Northbrook, Illinois): "Have a college reunion same time frame, opposite coast. Warm Regards." Phil

James D. Phelan (San Diego): "Sorry, in class."

Dr. David Seales (Florida): "Best Wishes!"

***U.S. NAVY MEDICAL NEUROPSYCHIATRIC
RESEARCH UNIT (NPRU)***

AND

NAVAL HEALTH RESEARCH CENTER (NHRC):

20TH ANNIVERSARY CELEBRATION

1 OCTOBER 1979

Compiled by

Brenda M. Crooks

**Naval Health Research Center
P.O. Box 85122
San Diego, CA 92186-5122**

**Vicennial Anniversary Review
and Historical Highlights
Argonaut Hall, Submarine Base
1 October 1979**

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Vicennial Celebration Program

Argonaut Hall, Naval Submarine Support Facility
1 October 1979

0730 Registration

0800 Welcome, Commanding Officer, NHRC
CAPT Richard H. Rahe, MC, USN

0810 U.S. Congressman Bob Wilson, 41st District - Medical Research in the Military

0830 VADM W. P. Arentzen, MC, USN - The Navy's Medical Research Mission

0910 Captain J. D. Bloom, MC, USN - Research Objectives of the Naval Medical Research and Development Command

0930 Poster Session and Coffee Break

1000 John Rasmussen, CAPT MSC USN (Ret.), The Founding of the Navy Medical Neuropsychiatric Research Unit

1030 Captain R. J. Arthur, MC USN (Retired) - The First Decade

1100 Paul D. Nelson, CAPT MSC USN - The Second Ten Years, A Program Manager's View

1130 Captain W. L. Wilkins, MSC, USN (Retired) - A 20 Year Perspective

1200 Lunch

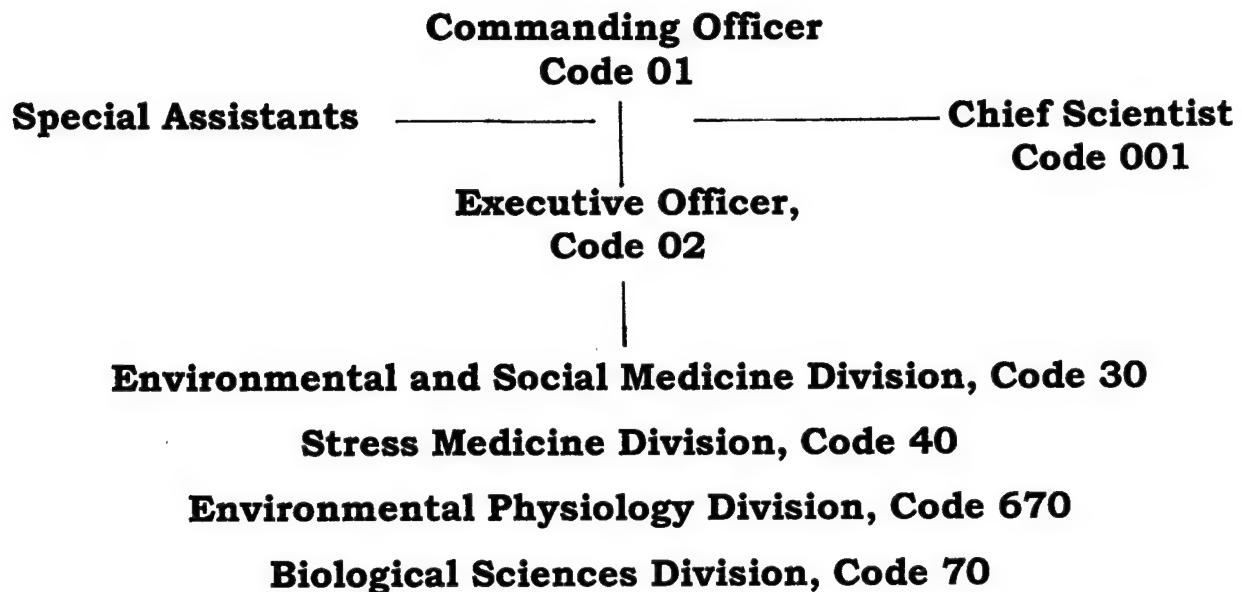
1315 Panel on Future Research Trends at NHRC
Moderator: Captain Rahe
Panel Members:
CDR Warren Sanborn, MSC, USN
LCDR John Shale, MC, USNR
LT Mark Butler, MSC, USNR
LT James Hodgdon, MSC, USNR
Cheryl Spinweber, Ph.D.
Ross Vickers, Ph.D.

1545 Closing Remarks

1600 Proceed to Wine Tasting Social Hour

1700 Adjourn

Organization List



**OFFICERS IN CHARGE
and
COMMANDING OFFICERS**

=====

U.S. Navy Medical Neuropsychiatric Research Unit (NPRU)

=====

Officers in Charge

CDR Lowell K. Cunningham, MC, USN (Ret.)
1959-1962

CAPT Kenneth P. Jones, III, MC, USN (Dec.)
1962-1963

CDR Ransom J. Arthur, MC, USN
1963-1971

Commanding Officers

CAPT Ransom J. Arthur, MC, USN (Ret.)
1971-1974

=====

Naval Health Research Center (NHRC)

=====

CAPT David R. Ten Eyck, MC, USN (Ret.)
1974-1975

CAPT E. Fisher Coil, MC, USN (Ret.)
1975-1977

CAPT Richard H. Rahe, MC, USN (Ret.)
1977-1980

THE SECOND TEN YEARS: A PROGRAM MANAGER'S VIEW

Captain Paul D. Nelson, MSC, USN¹

It is a singular privilege for me to participate today in observing the twentieth anniversary of the Naval Health Research Center, nee Navy Medical Neuropsychiatric Research Unit. I feel honored for many reasons, of which I will mention but three. First, the early roots of my own professional career and identity took hold at this Unit, long before it was a Center. Secondly, as occurs to each of us through life's various developmental phases, I was greatly influenced and very well taught by my mentors of those and subsequent years, three of the most distinguished of whom immediately precede and follow me on the program this morning. And finally, I am grateful to all of you, most especially those colleagues of nearly twenty years, for your professional support and personal friendship.

Ten years ago, as Captain Rasmussen was soon to retire from active duty, I had just completed what might normally be a three-year tour as Program Manager of the Navy Medical Department Human Performance R&D Program, Research Division, Bureau of Medicine and Surgery. The Navy's neuropsychiatric research program of the 1960's, described by Doctor Arthur, was of course a major area of management responsibility for me, as was the manned system performance research applicable to the environmental and psychological stressors of flight, diving, and submarine duty, the mission focus of our sibling laboratories at Pensacola, Bethesda, and Groton. I didn't realize at the time, though I might have suspected, that my tour length as Program Manager was by fate to be ten years, not three or even five; nor did I ever suspect that it would lead me to where I am now (and there are some who "still don't suspect that it will")!

Hence, as I began my second three-year tour as a research program manager, the Navy Medical Neuropsychiatric Research Unit launched its second decade of life. Both of us in a sense had learned if not mastered the mechanics of our tasking and, as I see it now, both of us were to develop in new ways professionally. We were each to be afflicted by the growing pains of adolescence, the problems of identity and direction, but encouraged as well by the joys and pride of occasional success, achievement, and of recognition in our new roles. The thoughts which I share this morning, then, are about the times and problems we faced, some of the agonies and the ecstasies we shared, during the 1970's, the teenage years of this laboratory. I will do so, as requested, from the perspective of a program manager.

Any organization, as any organism in general, must be able to sense, interpret, and cope with its environment if it is to survive. Its skill in doing so furthermore determines how effectively it will function and grow, given survival. We must acknowledge, therefore, the climate of the times, the issues about us, and the threats if you will to our survival as a laboratory and program during the decade of the '70's.

The post-VietNam era has been one of many moods and issues, to be sure. There was certainly an outspoken sense of social consciousness with, more particularly, an anti-military ring, not unusual following an international conflict so unpopular. Psychologists, and I suppose psychiatrists too, with a penchant and professed vocation for doing good for humanity were caught up in that rally. In 1973, at an American Psychological Association symposium chaired by Professor Herb Kelman and Dr. John Rasmussen, I participated in a public debate of the question: is the military application of psychological knowledge consistent with the promotion of human welfare? Within a few months of that occasion, Dr. Wilkins and others of this laboratory hosted the President of the American Psychological Association in a visit prompted by our involvement in medical follow-up of the returned prisoners-of-war from Southeast Asia. On that encounter, I believe we advanced the professional reputation of this laboratory, possibly that of military psychology, and even the profession of psychology itself.

Another mood with which we had to contend was what Dr. Arthur on occasion labeled "an anti-intellectual" climate. If there were too many Harvard men in our government of the '60's, as some might contend, there were probably too few during the '70's. Such a mood strikes especially hard on basic science, as upon the arts and humanities. When coupled with inflationary economics and the politics of despair as we have indeed experienced during this decade, the impact of that climate on the defense research laboratory could have been severe. It posed a constant if only potential threat to us; and yet this laboratory continued to grow, not without its budgetary problems, but at a rate at least as good if not better than most of its contemporaries. From the mid '60's to the mid '70's, the R&D budget for this laboratory nearly tripled, as did the Navy's biomedical R&D budget in general. Not all laboratories, or programs, enjoyed that same rate of growth.

Related in part to the economic pressures of the days, plus the frustrations of policy makers and administrators in understanding and coping with the plethora of manpower and personnel problems in the post-VietNam era, and in pursuit of such concepts as the unified service and center-of-excellence, we were studied constantly with the potential consequence of being abolished as a small individual laboratory. We were scrutinized as often across services as within. The Laboratory Utilization Committee appointed by the Office of the Secretary of the Navy was but one example of the latter, with all Navy personnel and medical research laboratories being the objects of study. "Would it not be better for there to be but one large laboratory?" For those interested in empirical evidence, the data in that instance did not unequivocally support the notion that "bigger is better," by any number of criteria. This laboratory with its unparalleled productivity per resource invested helped of course to make the case for the smaller dedicated unit of research. Though policy makers are not always guided by data, nor are any of us in our daily lives for that matter, we for some reason won that round in defense of smaller laboratories for at least our type of research. We nearly even had our proposal for Military Construction approved soon thereafter, following ten years of frustrating budgetary deferral, only to be kayoed in the final seconds of the fourteenth round at the SECDEF level,

the farthest we'd ever gone in the MILCON fight. "Why can't that research be done on contract?" was in essence one of the "bottom liners" at that time, a question we were probably better prepared and more eager to answer than the source of the question was to hear what we had to say. The decision had been made; we lost.

That question, however,---"why can't that research be contracted?"---is one we must never forget. The occasion of the MILCON review was not the first time it had been raised; nor is it likely to be the last. We must always be prepared in professionally responsible ways to be accountable to the public for its investment in our defense in-house R&D laboratories of all types, not just personnel and medical. It is the question which nags me even today in my current position when I must justify having health care administration, clinical and science professionals serve the Navy and Marine Corps as officers of the Medical Service Corps, rather than as civilians. The rationale for the defense laboratory today must be couched as is everything else in terms of its potential contingency role, its unique capabilities to provide critical support in times of conflict---and that might very well be professional support service rather than research. Its contribution to military readiness must be the *raison d'être* of its life. There is no question that we must be applied research laboratories, a descriptor which connotes a philosophy and style of practice for manager and scientist alike. That the Naval Health Research Center has not only abided but has always taken pride in being so defined in its activities is another reason for its success over these past twenty years.

Lest one might think that thwarting the threats from an unsympathetic environment was my preoccupation and the principal activity of this laboratory during its second ten years of life, let me quickly add that it was not. The point is simply that the laboratory survived in a relatively hostile environment at times, a necessary but insufficient condition for further growth and success. To achieve the latter, an organization must also be proactive in its environment. It must anticipate as well as react; it must risk failure as well as ward off defeat. It must be innovative as well as adaptive, continuously reaching out in search of truth and new challenge. It must be as capable of change as it is solid in its basic foundation. In no organization is this more essential than one dedicated to research. The Naval Health Research Center met these criteria, each one, during the 1970's.

To a great extent we understand the present by knowing the past. Hence, as a Program Manager, I tried to ascertain the historical trace of whatever research was current in our different laboratories, a genealogy of work units or tasks, if you will. For some, that was difficult to do; some were without history. But for most of the work under way at any time in this laboratory, there was indeed a foundation in the past. The trail was theoretical at times, empirical at others. For some work it was a new series of hypotheses; in other instances it was the testing of earlier hypotheses under different conditions. But the trace was usually there. Such systematic, evolving if not planned, programs of research are all too uncommon, unfortunately. Much of the success of this laboratory in my opinion can be attributed to its historical perspective, its attentiveness to the lessons already learned. One can see that from the progression of research conducted here from this laboratory's earliest days. And the scholarly leadership of Drs. Ransom Arthur and Walter Wilkins had a lot to do with that!

Among those threads of continuity which bridged the first two decades of this laboratory's life, the concept of life stress was certainly one of the more predominant. Though even Dr. Rahe will admit to the very modest predictive power of such a psychological scale as the Survey of Recent Experiences based on the concept of life stress, the real utility of the concept lies in its theoretical value. For, in support of the adage afforded us by Kurt Lewin that "there is nothing so practical as a good theory," the concept of life stress with its supporting theoretical constructs enabled a great diversity of questions, hypotheses, and actual projects to be organized in a more powerful way. It influenced the design of countless studies. It facilitated collaborative effort between branches and divisions of this laboratory though not without strain at times; it facilitated interaction between this and other laboratories both inside and outside our country; and between this laboratory and the university or other contract research community as well. An example, of course, is the much more elaborate extension from the 1960's of the early shipboard studies of stress into what has become in the 1970's perhaps the most extensive longitudinal research of life stress, health, and performance in work organizations ever undertaken anywhere.

The longitudinal aspect of this research within an epidemiological framework of methodology, cannot be overemphasized for its importance in any of the research conducted here over the last twenty years. For it has enabled the Naval Health Research Center, as the Navy Medical Neuropsychiatric Research Unit before it, to offer unique data and occasionally new insight into complex personnel issues troubling military managers and commanders---not to exclude those of the Navy Medical Department.

We had the only data for example, on the last battleship to operate in our fleet; we had longitudinal data over the course of a full deployment on a carrier afflicted by outwardly rebellious behavior and racial tension. From those data, in fact, we were able to offer some different perspectives on personnel issues about which the Chief of Naval Operations had to appear before a subcommittee of the Congress. We had been similarly prepared, by virtue of other epidemiological data on naval populations, to be among the first with any empirical evidence of drug abuse problems which, in the early 1970's were cause for considerable alarm, still prevalent today in some circles. Our followup data on neuropsychiatric patients, and then others, returned to duty from hospitalization also provided a means for the earliest program evaluation of the Navy's first alcoholism rehabilitation center. Before "habitability" became a buzz word, this laboratory had already studied and reported on many different aspects of shipboard ecology in relation to the health and performance of sailors. And by the time "environmental psychology" became a household item on the agenda of psychologists at their annual convention, not to mention a popular title for textbooks, this laboratory had already been there for a good number of years. The same is true today, of course, in regard to research on health behavior. But this laboratory was there by virtue of its research program, not the fads of the day. It is significant, and a tribute to Navy medical research, that of the original task force appointed by the American Psychological Association a few years

ago to look at the issues of health research (other than those of mental illness) two members were related to this laboratory and are on the program today---Drs. Rasmussen and Wilkins.

Of even more practical consequence during the 1970's, our shipboard studies of illness and accidents provided the Navy Medical Department its only reliable outpatient statistics from deployed fleet units by which to estimate physician and independent duty Corpsman manning requirements. From that observation came the notion that we develop an actuarial forecast model in which parameters of the ship, its crew, and its mission be used to project extent and type of medical care required over a deployment under different conditions of operation wherein the endurance of men is truly tested and absence from the job through illness or injury can impair a mission.

Related to those problems of sustaining performance in continuous operations at sea is the elusive subject of physical and mental fatigue. The pioneering clinical and experimental studies of sleep conducted at this laboratory in the 1960's were, in this past decade, extended to epidemiological research on sleep and other behavioral activity cycles aboard ship, as well as in other environments and continuous military operations. International participation of this laboratory in the Technical Cooperation Program (TTCP) and NATO symposia, as that conducted here two weeks ago on the topics of shifts, work-rest cycles, and biological rhythms, facilitated valuable exchange of information and new field methods for evaluating what Dr. Naitoh calls "sleep logistics," a critical matter for combat units. And, how important is it to be physically fit, as well as mentally alert, when faced with the duress and strain of long hours at sea---or elsewhere, for that matter? This question was pursued from the early UDT training studies to those of deployed carrier pilots on whom we even obtained "hard" performance criteria (no reference to the quality of landing), and upon recruits and their company commanders too---again, before it was mandatory to look at physical fitness.

Another achievement of a most practical value in the 1970's, resulting from the initiative of (then) the Navy Medical Neuropsychiatric Research Unit---most notably, Dr. Arthur---was the support given our returned prisoners-of-war. Based upon a knowing appraisal of history, and a professional assessment of sound medical practice, the use of research to assist in the follow-up health care given our repatriated pilots, sailors and Marines was the first such effort of its kind. When the release of our men came, this laboratory was prepared---though the fiercest of political and budgetary issues were yet to come. Of course the research conducted here in support of health and other services rendered the returned prisoners' families was also the first of its kind. It led, but not without struggle for program support, to further studies of the families of normally deployed pilots and sailors---not just a survey of their complaints, but an in-depth and longitudinal assessment of how they cope as a family with the separation from father or husband. What special health care needs do they have? How do they use the health care and other service agencies available? What might be done to facilitate their adjustment? These issues were the speculative questions of research several years prior to the time by which "family advocacy" became a formal program objective of high priority to Navy budget analysts.

Even on critical matters of research ethics and administration, this laboratory has been in front. The issues of Privacy and Protection of Humans in Research are cases in point. While many point papers and legislative "one-liners" were taking our time in Washington a few years back, the program here never dropped a stitch. The requirements facing research organizations on those issues, after all, had essentially been met some time already through standard professional practice by the Naval Health Research Center staff.

The Naval Health Research Center over its entire life of twenty years has been a shining example of how a defense research laboratory can serve its military organization with every bit the same quality as it conducts the scientific work of its charter. One can note very definite signs of growth in that capacity over the past ten years in particular. A review of this laboratory's abstracts of research in 1969 contrasted with those last published a year ago, 1978, reveals not only a shift in what is being studied, but in what's happening to the research as well. The length of the report of work in 1969 was eight pages and that of 1978 was fifty-eight. A good bit of the latter was history of the organization and current staff (including pictures)---not a bad idea for public relations. But the variety of scientific and clinical journals in which the laboratory's work is published has increased. And the list of consultations rendered to military managers and commands is greater and more diversified too. The number of scientific consultants is greater; and so is the list of collaborative projects undertaken with other defense laboratories and medical centers. Even the logo on the report cover is bolder and more comprehensive in its reference to the operational naval forces we support---though clearly within the mission of the Medical Department. And the site of today's program is a bit closer to the fleet than was Shelter Island ten years ago.

As much as anything during the life of this laboratory, the value of judicious leadership in an organization has been repeatedly demonstrated. And in that regard, the quality of scientific leadership is every bit as important for a defense research organization as that of the military leadership. Strength in both is required. The mix and quality of staff is critical too, not only the senior scientists but the support staff as well. New young talent is essential, and administration must work well with science. All of this leads to the climate or working atmosphere---representing a composite of many of the behaviors studied at this laboratory---which is absolutely key to productivity in this as in any type of enterprise.

The lessons learned in research management through the experiences of the Naval Health Research Center are as numerous and important to the Navy, I think, as those learned from the substance of the research conducted here. Yes, in search of a new identity more in keeping with new horizons to explore, we even changed our name and mission mid-way through this second decade. After all, as our late and esteemed colleague Ardie Lubin had once said, a research laboratory should be expected to have a productive life of about fifteen years---after which it should be abolished and started again. We weren't abolished; but we paused to take a new lease on life. Now, as we enter the third decade, the Naval Health Research Center is again in the childhood years of the new life. New challenges and opportunities lie ahead. But I expect that with due care and continued cultivation the Naval Health Research Center will have as illustrious a future as it has a past.

My final thought is one again of gratitude. It was always a privilege and personal pleasure---even fun at times---, certainly a professionally rewarding challenge, to work with all of you at the Navy Medical Neuropsychiatric Research Unit and Naval Health Research Center during my ten years as Program Manager. I learned far more than I imparted. Thank you for inviting me to participate and to share in pride with you on this historic occasion.

¹Invited address presented at the 20th anniversary of the Naval Health Research Center, San Diego on 1 October 1979. The author is the current Chief of the Medical Service Corps, U. S. Navy.

**Historical Comments from Plank Owner
Frederick L. McGuire, Ph.D.*
dated 17 Oct 79**

After Dr. McGuire's tour was ending at NRU, he moved on to the University of Mississippi School of Medicine. One of his responsibilities was to lay the foundation of NRU research activities in the Antarctic. Many man hours went into this preparation, including interfacing the Unit with personnel selection procedures for Deep Freeze, then based at Newport, Rhode Island, gathering historical data dating back to ADM Byrd's trips to the South Pole and arranging lines of communication directly to Antarctica. Dr. McGuire spent an entire month touring the U.S. gathering copious amounts of anecdotal data about the South Pole, including interviews with several who traveled with ADM Byrd and two of our own secret agents who operated between the Nazi submarine installations hidden at the tip of South America and operating between there and the general direction of Antarctica. ADM Byrd's last trip to the South Pole just before World War II was partly a cover for gathering information on these operations. ADM Byrd's custom was to include an Eagle Scout on each trip to the South Pole, Paul Siple was one of them.

Additional information of a similar type was gathered by correspondence with explorers from Europe, including participants in the ill-fated expeditions by Scott, Amundsen, etc. This material was placed in the Unit files...it would have made a wonderful book, when coupled with the Unit's later studies, would have indeed been a major contribution.

Dr. McGuire left the Unit a couple of months before he was due to travel to Antarctica to put the finishing touches to our system. He suspects John Rasumssen was at the time writing his orders. The systematic research on Antarctica was initiated in and began in 1959.

Dr. Plag had completed his PhD. dissertation in 1959 or 1960 doing the final work right after he joined the Unit. This was based on data gathered on naval recruits at Great Lakes, which there are probably early publications on that work.

*Professor of Medical Psychology, California College of Medicine, University of California Irvine Medical Center, Orange, CA

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON 25, D. C.

SECNAV 5450
Op-09B23
Ser 360P09B2

6 MAY 1959

SECNAV NOTICE 5450

From: Secretary of the Navy
To: Distribution List

Subj: U. S. Navy Medical Neuropsychiatric Research Unit, U. S. Navy Electronics Laboratory, San Diego, California; establishment of

1. Purpose. The purpose of this Notice is to establish the subject activity.

2. Establishment. The following activity, under an Officer in Charge, is established effective 1 June 1959:

U. S. Navy Medical Neuropsychiatric Research Unit (NMNPRESU)
U. S. Navy Electronics Laboratory
San Diego 52, California 4180 700 (SNDL H26)

3. Command Relationships. The subject activity is a component of the U. S. Naval Base, San Diego, California. It is under the military command of the Commander, U. S. Naval Base, San Diego, California, unless otherwise directed by the Chief of Naval Operations, and under the management control of the Chief, Bureau of Medicine and Surgery.

4. Mission. The mission of the subject activity is: To conduct research in the area of neuropsychiatry as it applies to the naval service.

5. Implementation. Bureaus and offices concerned take necessary action.

6. Cancellation. This Notice may be retained for reference purposes, or cancelled when no longer needed.

C. P. MICHE
C. P. MICHE
Assistant Secretary of the Navy (Material)

DISTRIBUTION: (See Reverse Side)

DEPARTMENT OF THE NAVY
U. S. NAVY MEDICAL NEUROPSYCHIATRIC RESEARCH UNIT
SAN DIEGO, CALIFORNIA 92152

IN REPLY REFER TO:
28 October 1959

MEMORANDUM

From: Scientific Director
To: Professional Staff

Subj: In-Service Development

1. Since each of us is working in a somewhat different area but is anxious to keep up on what the others may be doing, I am proposing that we institute a regular series of in-service professional presentations.

2. In order that we avail ourselves of the educational opportunities close at hand, I am asking Lt. McMichael to survey the Staff development conferences "on campus" that we might be eligible for, prepared for, and could profit from. For instance, the two intermediate courses announced at NEL this past week on intermediate aspects of computer programming, the more elementary of which deals with the Booleas algebra foundational to binary systems, I presume is a little heavy for us. But what do they have we could learn from? And does PRA have Staff conferences of relevance to us?

3. On "campus", the two larger Los Angeles medical schools will have occasional formal lectures or conferences which may well be of value. I will try to keep track of them. The State College appears to have few colloquia of a level to attract us as yet.

4. Within our own resources, I am suggesting that, until we get too busy with data and analysis of data, but fairly regularly even then, we have several sorts of staff conferences.

First, once a month each staff member, and I feel this should include the Scientific Director and the Officer in Charge, should prepare to conduct a staff meeting in which he will point up the direction of research in some phase of the area he is responsible for by a focused review of the scientific or psychiatric literature of relevance, with possible leads for testable research hypotheses; or, review data he has collected or some problem he is working on; or, read sections of a paper he is writing. Each staff member who is reading a paper, whether submitted, symposium, or panel, at a regional or national meeting, should expect to have the opportunity to read it in staff conference first.

Second, once a month, each staff member should have read a recent or a significant book or monograph, not necessarily connected with his or our research and be prepared to review its highlights, its implications, its leads for research and its worth for us. To initiate this, the Scientific Director, will discuss in October, four recent volumes devoted to brain function and drug action; in November, Eli Ginzberg's The Ineffective Soldier; and in December, Irving Janis's Psychological Stress; Psychoanalytic and Behavioral Studies of Surgical Patients.

5. Beginning after Christmas a fairly fundamental review of highlights of some statistical techniques should be initiated. I think this could well begin with reviews of recent textbooks on experimental design in medical research, such as A. E. Maxwell's, and then proceed to explanation of how specific problems were tidily and economically planned and analysed.

6. These suggestions should occupy, over the next three months, about three hours per week of staff time in concert. As we gain more staff, we shall have to plan to use not much more time, if any, than this. In hammering out research designs from hunch to proposal, the informal office or coffee time explication may be better than a quasi-formal meeting.

7. The Officer in Charge should encourage interested and competent corpsmen to attend staff conferences when time permits--and job of staff members as well.

8. Chief Wright should detail one of his staff to keep track of the topics and responsible staff members as far ahead as possible and to post the schedule on the second floor bulletin board.

Walter L. Wilkins

Office Memorandum • UNITED STATES GOVERNMENT

TO : Administrative Assistant, Research Div., BUMED DATE: 26 April 1960

FROM : OIC, NMNPRU, San Diego

SUBJECT: Facility description, submission of

The attached facility description is forwarded in compliance with your request of 21 April 1960.

LOWELL K. CUNNINGHAM
Commander MC, USN
Officer in Charge

Location: On the compound of Naval Electronics Laboratory, San Diego 52, California

History: By SECNAV NOTICE 5450 of 8 May 1959, the U. S. Naval Medical Neuropsychiatric Research Unit, San Diego, was established effective 1 June 1959.

Mission: The mission of the activity is: To conduct research in the area of neuropsychiatry as it applies to the naval service.

Command Relationship: The activity is a component of the U.S. Naval Base San Diego, California. It is under the military command of the Commander, U.S. Naval Base, San Diego, California, unless otherwise directed by the Chief of Naval Operations, and under the management and technical control of the Chief, Bureau of Medicine and Surgery.

Facilities:

Space Building 306, a two-story frame building, formerly a barracks, on the grounds of the Naval Electronics Laboratory, and containing 4,720 square feet (gross).

Special Facilities and Equipment

Mimeograph machine	Fusion Flickometer	Calculators
Tape Recorders	Photocopy equipment	

A few books and some 600 reprints form the nucleus of a research reference library.

Personnel

	On board	Allowance
Military	10	11
Civilian	10	11

Research Programs: The research programs of the Unit can draw upon the wide variety of sea and shore based establishments in the San Diego area, and when indicated for comparison purposes, obtain data from similar activities in other areas within the CLUSA and from overseas activities. The research task areas are as follows:

Assessment of Psychiatric Effectiveness of Naval Personnel.
Development of Diagnostic and Psychotherapeutic Techniques for use in the Naval Service.
Development of Preventive Psychiatry Problems.
Neurology
Psychopharmacology

Studies in Personality Structure and Function
Neuropsychiatric Selection of Personnel

Affiliation and Liaison with Other Agencies:

Naval Electronics Laboratory
Camp Elliott
San Diego State College
University of California at Los Angeles
U.S. Naval Hospital



DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY
WASHINGTON, D.C. 20390

IN REPLY REFER TO
BUMEDINST 5450.64B
4123-soc
10 Nov 1971

BUMED INSTRUCTION 5450.64B

From : Chief, Bureau of Medicine and Surgery
To : Commanding Officer, Navy Medical Neuropsychiatric Research Unit,
San Diego, California

Subj : Navy Medical Neuropsychiatric Research Unit, San Diego; mission
and functions of

Ref : (a) OPNAVINST 5450.171 (NOTAL)
(b) OPNAVNOTE 5450 ser 4215P09B33 of 26 Aug 1969

Encl : (1) Mission and Functions of the Navy Medical Neuropsychiatric
Research Unit

1. Purpose. To promulgate the mission and functions to be performed by
the Navy Medical Neuropsychiatric Research Unit in accordance with refer-
ences (a) and (b).

2. Cancellation. BUMEDINST 5450.64A is canceled.

3. Status and Command Relationships. The unit is a shore (field) activity
in an active operating status under a commanding officer, and under the
command and support of the Chief, Bureau of Medicine and Surgery. The unit
is under the immediate area coordination of the Commander, Naval Base,
San Diego.

4. Mission and Functions. The unit's mission and functions are as pre-
scribed in enclosure (1).

5. Action. In accomplishment of the assigned mission the commanding
officer shall perform the functions set forth in enclosure (1) as directed
by the Bureau of Medicine and Surgery. Requests for changes or modifica-
tions to the assigned mission or functions shall be submitted to the
Bureau of Medicine and Surgery, with a copy to the area coordinator.

G. M. DAVIS

Distribution:
(See next page)

Mission and Functions of the
Navy Medical Neuropsychiatric Research Unit

1. Mission. To conduct research in the area of neuropsychiatry as it applies to the naval services.
2. Functions. As directed by the Chief, Bureau of Medicine and Surgery:
 - a. Preventive psychiatry: to conduct research as may be necessary to identify problem areas and develop clinical techniques and programs in order to make the maximum contribution of preventive psychiatry to the naval service.
 - b. Personnel effectiveness in special environments: to investigate the nature of, and develop solutions for, psychiatric problems engendered by physical and psychological stresses encountered in unusual military environments. This task includes research on selection of personnel for assignment to fleet programs in unusual environments.
 - c. Psychophysiology: conduct research directed toward evolving psychophysiological correlates or indices of behavior patterns and/or emotional responses. Task includes work in the area of cortical dysrhythmia and convulsions, in both clinical and nonclinical populations.
 - d. To disseminate the results of research in such a manner as to insure adequate communication with the naval activities concerned.
 - e. Provide or undertake such other appropriate functions as may be authorized or directed by higher authority.

Enclosure (1)

PLANK OWNER'S

June 1959

The U.S. Navy Medical Neuropsychiatric Research Unit was established effective 1 June 1959 (SECNAVNOTE 5450 Op-09B23 Serial 360P09B2 dated 8 May 59). Its assigned mission was "To conduct research in the area of neuropsychiatry as it applies to the naval service." (BUMEDINST 5450.64B)

Commander Lowell K. Cunningham, MC, USN
Officer in Charge

Walter L. Wilkins, Ph.D.
Scientific Director
(San Diego, California)

LT Frederick L. McGuire, MSC, USN
(Irvine, California)

LT Allen E. McMichael, MSC, USN

HMCS William "Bill" K Wright
(San Diego, California)

HM1 James O'Heir, USN

HM2 Jerry G. Irvin, USN

HM3 William "Jake" Westfall, USN
(Fort Worth, Texas)

Josephine Carey

John A. Plag, Ph.D.
(San Diego, California)

Dorothy Swett
(San Diego, California)

(current location)

REPORT DOCUMENTATION PAGE

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